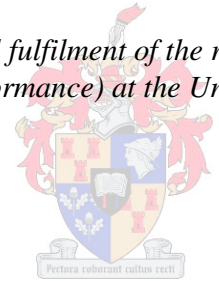
Video game genres and their music

by
Pieter Jacobus Crathorne

Thesis presented in partial fulfilment of the requirements for the degree Master of Music (Performance) at the University of Stellenbosch



Supervisor: Prof. Winfried Lüdemann
Department of Music

March 2010

Declaration

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

March 2010

ABSTRACT

This thesis's main focus is the connection video game genres have to the music used within them. The thesis starts by going back to the origins of music and its connection to movement. This leads to a better understanding of why visual presentations through the ages have always been accompanied by sound.

Next, different types of sound are studied, as well as how they are implemented in various media today. This leads a discussion of genre, and care is taken to differentiate between genres in video games and in music. This is then applied to the sphere of video game music, which is then observed from the perspective of the video game genre. Analyses of music excerpts from a specific video game are also included in this section.

The reverse is then applied by approaching the issue of video game music from the perspective of the music genre. It is concluded that one needs to approach the matter of video game music genre from a new perspective, relying on the source of the music and the means of music integration, rather than on existing music norms.

OPSOMMING

Hierdie tesis se hoofdoel is om die konneksie tussen videospeletjies, en die musiek wat daarin gebruik word, te ondersoek. Die tesis begin deur terug te gaan na die wortels van vroeë musiek, en hoe dit deur die jare ‘n noue verbintenis gehad het met beweging. Hierdie konneksie maak dit duidelik hoekom visuele produksies gewoonlik deur klank ondersteun word.

Volgende word verskillende verskynsels van klank bestudeer, asook die maniere waarop klank vandag in verskeie media geïmplementeer word. Dit lei tot die kwessie van genre. Daar word onderskei tussen die genres van musiek en die genres van videospeletjies. Volgende word die area van videospeletjie-musiek bestudeer, uit die perspektief van die videospeletjie-genre. In hierdie seksie kan analises van musiekuittreksels uit ‘n videospeletjie gevind word. Die teenoorgestelde word dan toegepas, deur die kwessie van videospeletjie-musiek uit die oogpunt van die musiek-genre te bestudeer.

Aan die einde word dit waargeneem dat videospeletjie-musiek nie deur die norme van musiek-genre bestudeer kan word nie, maar dat nuwe perspektiewe ingeneem moet word, naamlik die oorsprong van die videospeletjie-musiek, asook die manier waarop dit in die speletjie geïntegreer word.

ACKNOWLEDGEMENTS

I cannot thank my supervisor, Professor Lüdemann, enough for his patience and guidance.

I would also like to thank my piano lecturer, Bennie van Eeden, and my mother, Arina Crathorne, for their support and encouragement.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1 Motivation of the study

It is no longer necessary to justify research on video games anymore: much research on video games in general has been published, and there are many informative articles to be found on the internet.

However, only limited research has been done on the music of video games. There is agreement that the area of video game music is rich with research possibilities (Whalen, 2004). Of the research done so far, most seems to consist of general overviews, frequently from a historic (see Leonard, 2001) or biographical (see Belinkie, 1999) perspective. It is still rare to find research in which video game music is studied from a musicological perspective.

Up to the present, only a few books have been published that focus solely on the music of video games. Even more so, a methodological model designed by Lars Konzack (2002:89, cited in Stockburger, 2005) allowed a "complete" analysis of any video game, yet this model makes no mention of sound.

This apparent neglect is understandable, for the research possibilities on video games are numerous, and there are many other areas one can focus on, which include the more prominent facets such as graphics, animation, artificial intelligence, marketing, et cetera, none of which requires the researcher to be proficient in music analysis.

Being an electronic medium, video game music has garnered much attention online, from being casually discussed in forums to being formally scrutinized in the form of electronic journals and separate essays being available from various websites. It is the aim of this thesis to encourage video game researchers and musicologists alike to spend more academic thought on the sphere of video game music.

1.2 Purpose of the study

The aim of this thesis is to contribute to the limited research done on video game music and to promote the appreciation of it. In order to understand the phenomenon of video game music, there will be differentiated between video game genres and music genres. The next step will be to examine the music itself, from the perspective of both the video game genre as well as the purely musical side.

In the same breath there will be distinguished between video game genres and genres in other fields. Similarly, the question of where video game music fits into the sphere of music will be addressed. Comparisons between music in video games and music in other visual media (such as film music) will be made.

1.3 Research methodology

When researching video game music, one should always remember that the music is placed in the game for a reason. One cannot expect to fully understand video game music without playing the actual video game, just as one cannot expect to understand opera music if listening to the music without the sung text. If these conditions are accepted, then a critical investigation into video game music becomes entirely feasible.

Because the nature of video game music is unique in the sense that it supports an interactive (and therefore unpredictable) visual medium, traditional methodologies associated with other music and visual studies cannot readily be applied to video game music. When discussing sound in film studies, it is assumed that the visual aspect is fixed. The music used in films is therefore created with a specific timeframe in mind, along with precisely timed visual cues. The methods used in film studies could therefore be applied to video game cut scenes[1], however, these are in essence short films; the music discussed in this thesis focuses solely on the music within the game itself.

In the analysis of video game music one needs to isolate it from the visual image in order to understand the purely musical structure. This can be done quite easily. The more challenging methodological problem is, in the end, not to lose sight of the respective connections the music has with the video game, the latter being an interactive medium that does not allow one to analyse the formal structures of music as if they were fixed.

A different approach to analysis will therefore have to be followed in order to understand the different techniques composers of video game music use (in contrast with composers in other fields) to provide coherence and structure to music supporting an unpredictable visual medium.

The analyst should guard against making conclusions about the music solely on the basis of the music in isolated form. On the contrary, the most suitable way to achieve a fuller

[1] "A [cut scene] is a section of a game where the player has no control, where he simply watches the plot unfold; a [cut scene] is essentially a little movie within the game, and game developers usually include them as a way to move the plot of the game In a desired direction […]" (Pidkameny, 2002).

understanding of the music is to collect data through actual participation in the game, in other words, the researcher will need to actually play video games and thus participate in that which he/she is investigating. How the music is relevant to the video game and how the music is connected to genre will be the main focus points.

To illustrate the differences in methodology between investigating video game music on the one hand and opera and dance music on the other, a brief historic survey of these latter genres will be conducted in chapter 3. This is not only to compare video game music to other kinds of music, but also to identify where video game music is coming from, and what the possible future implications might be.

The actual investigation into video game music can best be achieved if it is divided into several stages. Initially, an investigation of components such as sound, audio and music as used in video games will be presented (chapter 4). This will also venture into an understanding of the phenomenon of video game music as a whole. Subsequently, a genre study in respect of video game will be conducted (chapter 5). This needs to be complemented by a study of musical genre in general (chapter 7).

It is clear that those aspects of video game music that are not dependent on time, such as the harmonic structure for example, can be investigated by means of conventional analytical methods. For that purpose a number of analyses of examples of such music, presented in the form of excerpts in notated music, are included in the investigation. The complete picture then has to be put together from these various individual components.

1.4 Problems associated with the research

As mentioned above, the amount of academic work done on video game music is limited. Furthermore, many informal articles about video game music do not carry the scholarly credibility necessary for them to be used in an academic work. However, the information found on well-known gaming websites and publications, albeit informal, are taken into account.

It is difficult to obtain examples of video game music that are easy to study; many times the only way to study video game music is by actually playing the game. Although this helps in placing the music within the context of the video game, it can sometimes be obscured by in-game restrictions and noises. Alternatively, one can try to forcibly “rip” the music from the

video game program, although this is not always possible, legal or even truly representative of the music in-game.

Recently it has become custom that the soundtrack of a video game will be released separately, which isolates the music from the game, making it easier to listen to without the distractions of the video game. Sheet music can sometimes also be obtained, although this is rare.

1.5 Scope and structure of the study

To gauge what research has been done on video game music already, a literature study was undertaken on the limited material available in Chapter 2. The next part of this thesis focuses on the question of music and genre in general, before studying specific video game genres and music. Chapter 3 takes music back to its origins and outlines how music has been used supportively throughout the years. Chapter 4 discusses the various forms that sound can take on in video games. Chapter 5 tackles the problem of genre from the perspective of both the video game and of music. In Chapter 6, very specific examples of video game genres and their music are studied. Chapter 7 takes the opposite approach, looking at a specific music genre and applying to various video game genres. Chapter 8 draws various conclusions and suggests new courses of study that can be taken with regards to video game music.

CHAPTER 2: LITERATURE REVIEW

In a study that chronicles the development of video games, and the music that is associated with it, Belinkie (1999) gives various examples of the different limitations and choices composers face, mainly when composing for various consoles[2] developed up to that time. This is elaborated upon by adding personal computers and arcades as extra mediums for video game music in an article by Leonard (2001). He focuses especially on the audio capabilities of the PC (Personal Computer), something that is absent in Belinkie's article.

In another study, the history of video game music is traced to a more recent date (Pidkameny, 2002) and therefore could take into account more up to date trends in the development of video games. This is elaborated upon by Furlong (2006), who also discusses trends associated with video game music. Similarly, the capabilities of the most recent gaming consoles, such as the Playstation 3, as well as technologies such as Dolby 5.1 surround sound, which were not found on earlier consoles, are described by Chan (2007).

A study detailing all the sound formats used on different gaming systems throughout the years contributes to the history of the video game from a more technical viewpoint (Farnell, 2007). Lastly, an entire article dedicated to the music of the Commodore 64[3] and how composers circumnavigated the technological restraints the system presented sheds light on how researchers can focus on specific eras or technologies when discussing video game music (Collins, 2006).

Though video game composers are featured in many of the studies in this literature review, Pidkameny makes the effort of adding a few short biographies of a few known (and lesser-known) composers. Japanese and American composers are seen as the two main contributors to video game music by Belinkie, with the former dominating the field (the scene of video game composers has become significantly more international since 1999).

The importance of video game music in Japanese culture is also explained by Belinkie, and how it is uniquely appreciated in the country. The reverse can almost be said about the appreciation for video game music in Western culture, especially America, where it might be considered ridiculous to pay any serious attention to this type of music.

[2] Consoles are video gaming devices which are usually connected to a television. Note that this does not include devices such as personal computers, coin-operated slot machines or arcade games.
[3] The Commodore 64 is a personal computer model that was released in 1984. It was immensely successful, and is considered as particularly representative of the 1980's (Kahney, 2003).

The first formal attempt of connecting music to its associated video game genre is made by Leonard, but he does so in a vague and generalised way. Video game genres and their music are further elaborated upon by Pidkameny, but he does not come up with a definitive descriptions. He was the first to include formal case studies in his work, but each individual study is relatively short (about a three-quarter page each) and is done from a mostly historical perspective. Three more detailed case studies are found in Whalen's article (2005), but they are done to draw attention to the way in which the music reflects the narrative of the video game. There is no sign of a specifically musical perspective in these case studies.

A concisely compiled list of various video game genres can be found in Chapter 6 of the book *The Medium of the Video Game* (Wolf, 2001:117). However, he deviates too far from the everyday use of video game genres, creating an unnecessary gap between the academic and popular spheres of video games.

Considering specific video game genres, Grimshaw (2008) conducts a thorough study of the sounds found in First Person Shooter video games, especially how it reinforces the virtual gaming world to the player. Even though his study does not investigate the music associated with the genre (it focuses on sounds, not music), it contains many valid points on how sonification is applied within video games.

However, Zehnder and Lipscomb (2006) specifically discuss the role video game music plays in immersing a player within a video game environment. They take film music as their point of departure, before examining the role of music as a communicating device. They also conducted an experimental study to determine whether music influences the degree to which the participants or players are immersed within a video game. As they correctly observe, this facet of video game music remains virtually uncharted.

The first attempt to compare the development of video game music to film music was undertaken by Leonard. He notes for instance that both early movies, as well as early video games, had no sound. He also finds that genre classification in video games cannot be approached the same way as in film studies. A comparative study between video game music and film music is undertaken by Furlong (2006).

The music in cut scenes and the rest of a video game is distinguished by Pidkameny. Stockburger (2005) agrees that there are similarities between film and game music, though argues that video games "...have a very specific way of deploying sound, which is different

from film..." In his own study, Whalen adds the music and the sound effects of cartoons to the investigation.

Leonard fleetingly mentions the existence of thematic material in video game music. Even though it is now clear that it does exist, no further research has been done in this area.

In an unprecedented article, Capacchione (2007) writes a paper which focuses solely on the music of the video game *Arcanum: Of Steamworks and Magick Obscura*, devoting much attention to the music from a thoroughly scholarly perspective. He mentions how "the analysis of video game soundtracks is short on terminology and labels, particularly from a music theoretical perspective", deciding to use non-musical video game terms to make his meaning clear.

Similarly, in his dissertation, Chan (2007) spends most of his time looking at specific video games, studying the music used in them, and how it is implemented. His analysis of the menu music in *Civilization IV* is a good example of how video game music can be approached from musicological perspective. He analyses the music harmonically and stylistically and also includes excerpts of the music in notation form. He finds that the composer, Christopher Tin, borrows many musical ideas from Debussy, and breaks down the music in a systematic way, recognising fugal and ostinato elements used in the composition.

With regards to video game audio, Stockburger attempts to divide what can be heard in video games into its constituent parts. He explains the difference between the user and the gaming environment, before outlining the different types of audio that can be encountered in a video game, and the auditory spatial functions that these fulfil, as well. Whalen specifically looks at various "mickey mousing"[4] sound effects his article.

Farnell (2007) takes this further by delving into "procedural audio", and how this is applied to the area of video games, giving many technical, detailed definitions of various audio phenomena, and how they are applied to video games. Stockburger also elaborates on the dynamic acousmatic function of sounds in video games. Nordlinder (2007) details this even further by discussing the spatializational cues fulfilled by audio in a video game. He approaches the subject from a programming perspective.

[4] Mickey mousing, or "mickeymousing", occurs in both animated and live-action cinema when the [audio] provides a synchronised, aural imitation of what is happening on the screen." (Neumeyer and Buhler, 2001, cited in Whalen, 2004).

An attempt to join together the various aspects of video gaming audio is undertaken by Collins (2008), who discusses everything from the technical side of video game audio (including the different audio formats used in video games), the stages of audio production to be considered when incorporating audio into a video game, video game genres and how they are influenced by gameplay, and the technical approach video composers need to take when writing for video games.

CHAPTER 3: THE SUPPORTING FUNCTION OF MUSIC

From the earliest ages, music was not seen as an autonomous art form as it is today, but inextricably linked to movement and language. Music is often combined with other forms of expression, yet music itself is essentially abstract. Music might be connected to movement (such as dancing), yet music itself does not move. Music might be connected to text, but itself does not convey the meaning of the spoken language.

Only if the listener chooses to associate the music with its intended counterpart will the music signify anything. Scruton, (1999: 131) gives an example:

> We can have a considerable, even perfect, understanding of a piece like *La Mer*, while being ignorant of, or dismissive, towards, its representational claims. Of course, to hear with understanding you must perceive the musical movement: those vast heavings of bottomless sound which can indeed be likened to the swell of the sea. But you do not have to hear this movement as the movement of the sea or even to notice the likeness.

Therefore, even though music is used to support other art forms, it remains nonrepresentational.

3.1 Opera

In opera, music is used to accompany mostly sung text, but also drama and sometimes even dancing on-stage. It is assumed that the root of opera, namely the Greek tragedy, contained accompanied singing. Initially with the operas of the Baroque era, much care was taken with regards to the sung text and the instrumental accompaniment, not only so that the voice would follow the natural declamation of speech, but also that every embellishment and harmony would perform an expressive goal.

By the time of Wagner and the other late-Romantics, the instrumental side of the opera was elevated to a sphere much higher than mere accompaniment. Melody, harmony and instrumentation all contributed to allow the drama and singing to be more expressive. According to Scruton (1999: 136), the music still does not represent feelings and emotions; it is a special case of expression in a state of symbiosis with the sung text and the drama.

The fact that music has been used through the ages to promote a higher dimension of expression in singing is significant. This is based on the understanding that music adds an extra dimension of meaning to the meaning already present in the words.

3.2 Dance

Music is not exclusively linked to text, speech, and drama, but also to movement. In fact, music and movement or music and dance, for that matter, must have been linked to each other since the time of the earliest humans. The expressive potential of these two forms of behaviour has been exploited at all times and in all cultures. European ballet is but one realisation of this potential.

From the earliest ballets, music was there to accompany the movement on-stage. Certain norms and structures were established, but care was always taken that the movement of the dancers was synchronised to the rhythm and mood of the music, and vice versa. The instrumental accompaniment of early ballets followed the structure of other instrumental works of the time.

Ballet music represented an important part of the work of 19th-century composers such as Tchaikovsky, who brought the full expressive power of symphonic music to the ballet. In contrast, composers of the 20th century tended to exploit the raw power of pure movement to a greater extent. This is the context within which video game music should be examined, since it relies much more on the link between music and movement than on the narrative aspects present in the relationship between music and text or music and image, as opera and film do. It needs to be assessed whether video game music actually realises the potential present in the medium. Nevertheless, film music also provides an important point of reference for video game music, even only if the latter had its origin in the former and consequently makes use of many of the techniques developed in film music, such as employing diegetic or non-diegetic sources of sound, leitmotifs, etc.

3.3 Film music

With the advent of the cinema and motion pictures, music was present to accompany the soundless action onscreen. Mervyn Cooke (2001: 797) appropriately explains:

> Early cinematic presentations in the 1890s were an offshoot of vaudeville and show-booth melodrama and, as both entertainment and spectacle, tradition demanded from the outset that they be accompanied by music.

As with other productions, especially opera, it was assumed from the beginning that music must be present to support the silent, visual aspect of the performance. Cooke (2001: 797) also remarks that "the use of Wagnerian leitmotifs as both narrative and structural device in

early film music has persisted to the present day" (this is also applicable to the music used in television series and, as will later be discussed, video games).

This reinforces the notion that music is to support whatever drama / movement / narrative it is paired with. Film music is now specifically composed for the action on-screen, and only became possible after sound films were released and it was learnt how to synchronise music to the visual images. This allows composers and directors of films to pair music to specific scenes with expressive goals in mind.

Whalen (2004) mentions how music used in video games adopted its role from prior narrative media, especially those of films and cartoons. The relationship between audio and visual elements in film is also copied by video games, and understanding this relationship in films will ultimately facilitate the evaluation of video games. Both films and video games "...rely on both aural and visual cues to convey a sense of consistent diegesis or gameworld." (Whalen, 2004).

CHAPTER 4: TYPES OF SOUND

Before examining video game music, it should be clear exactly what is being examined. In his book *Image and Representation: Key Concepts in Media Studies,* Nick Lacey (1998:52) briefly mentions the different types of audio than can be found in electronic media (such as film and television). Even though his book mostly focuses on the visual aspects of these media, he mentions that audio is often unnecessarily neglected, especially because sound can play a meaningful, supporting role to its visual counterpart.

Lacey cites four different types of sound that can be analysed in such visual media:

1. *dialogue (or monologue)*: the most obvious dimension – what characters are saying onscreen;
2. *sound effects*: non-verbal sounds, created within the onscreen space, the source of which is clear to the audience;
3. *ambient sounds*: background sounds which add to the atmosphere of the scene;
4. *non-diegetic sounds*: not originating from onscreen space; for example, a voice-over or sound-track music.

Even though there are a few gaps in Lacey's list of sounds (for instance, he does not mention diegetic music), these descriptions are very valid when considering television or film studies; however, the interactive and therefore unpredictable nature of video games, along with other elements (such as menu screens[5] in video games) which are absent in television and film, will require that sound be approached in a different way when analysing video games.

Stockburger (2005) takes it even further back, differentiating between the user and game environment. This might seem irrelevant, though he does have a point: Video games can be played in a "...game arcade, living room or game boy on a bus...". The experience of sound, even if it is the same video game, would therefore be different in each scenario. He contrasts this to the game environment; it is the audio of this sphere that is discussed in this chapter.

4.1 The types of sound found in video games

The analysis of the different types of sound that can be heard within video games will not only help to differentiate between the sounds, but also help to establish the functions of these sounds.

[5] Menu screens include the opening screen, the first part of the game where the player will have the option to start or load a game. Menu screens also include various options screens where the player will be able to calibrate different settings of the game.

4.1.1 In-game sounds

The term "in-game sounds" refers to the audio that can be heard when the game is in play. This is in contrast to the audio heard in cut scenes. These cut scenes are short movies, and should be treated as such. Whalen (2004) agrees: "Cut scenes' widespread adoption of filmic perspectives and techniques renders their analyses more appropriate for straight-forward film theory."

4.1.1.1 Music

Firstly, it is important that the difference between the terms audio and music is understood. Where the *audio* of a video game includes everything that can be heard during play, the *music* of a video game essentially fulfils the role of the "soundtrack"; video game music is usually non-diegetic. The term audio includes aural objects such as sound effects, which are usually diegetic. Audio would therefore also include music.

Interestingly, Lacey (1998) mentions music in film and television as a form of non-diegetic sound, which is not the case in video games, where non-diegetic sounds can include sounds which are not music, and where music is not necessarily non-diegetic.

4.1.1.2 Sound objects / effects

Sound objects are aural occurrences that accompany actions on-screen. Things that can easily be taken for granted, like footsteps, sounds of breathing, gunshots, all need to be meticulously recorded and programmed so that it will happen in tandem with its visual cuet.

Also, even though Lacey (1998:52-53) mentions dialogue as a sound dimension by itself, it is not necessary to give it its own category in video game music (Stockburger (2005) also mentions "Speech sound objects"[6] as a separate occurrence). When dialogue is heard within the gaming environment (in other words, when the game is in play), it can always be traced to a diegetic source; therefore speech in video games can always be labelled as a sound object. The dialogue heard in cut scenes is not included here; cut scenes are basically short movies and should be treated as such.

[6] See Appendix B: Included are Stockburger's definitions of the different sound objects that one can find in a video game.

4.1.1.3 Ambient sounds

One gray area is that of ambient sounds. Such sounds are sometimes inaccurately labelled as a form of video game music. Ambient sounds are occasionally heard within specific game-areas within a video game to contribute to the atmosphere; to help immerse the player in the game-environment. An example of this would be the chirping of birds, the sound of a river flowing and the rustling of leaves in a tropical setting. Even though these sounds are supposed to originate from within the game environment, and could therefore be accepted to be diegetic, it is not possible to trace these sounds to a diegetic origin. Ambient sounds therefore need to be classified on a scale somewhere between diegetic and non-diegetic sounds.

The use of the term "ambient sounds" is meant to refer to sounds as discussed above, and not to sound effects that can be traced to a diegetic origin, for example, being able to trace the bird that is making the chirping sounds. In such a case, the sound originating from the bird is diegetic, and is more accurately labelled as a sound object or sound effect. (The "zone sound objects" stipulated by Stockburger (2005) is in essence the same as ambient sounds, although he includes certain sound objects in his description that are of diegetic origin).

To give a further example: If a player is controlling a character within a video game, the footsteps heard when the character moves would be diegetic and are labelled as sound effects. The same would be applied if the character should fire a gun, and a gunshot is heard. If there is an orchestral backtrack playing, this would be non-diegetic (for there is no orchestra in the character-environment), and would be classified as the video game music. If the character-environment is a cave, and there are drops of water and rustling of bat wings to be heard, they can be labelled as ambient sounds, if there are no traceable sources of these sounds.

The reason why some researchers might discuss ambient sounds when discussing video game music, is because these sounds are usually pre-recorded and then played and looped, like you would do with a music track. Because these sounds are supposed to be random and are not composed in any way, other than being recorded and edited, it would be better to either discuss ambient sounds on their own, or as a type of pre-recorded pattern of sound effects. Even though ambient sounds are dictated by the character environment in a game, they usually bear no specific musical meaning and should rather not be seen as a form of music.

4.1.1.4 Summary of in-game sounds

In summary, the different types of sound in video games are:

1. *Music:* The "soundtrack" of the game which is usually, but not always, non-diegetic. This will include composed tracks and licensed music used in the game.
2. *Sound objects / effects:* Aural occurrences which coincide to happenings within the gaming environment. They are usually short and can be repeated whenever necessary. Sound objects are exclusively diegetic. This will include sounds such as footsteps, radios, speech, and etc in-game.
3. *Ambient sounds:* Sounds that appear to be diegetic but whose source can never be found in-game. Ambient sounds are therefore neither completely diegetic nor non-diegetic. Ambient sounds would include for example the wind blowing or church bells tolling in the distance.

4.1.2 Audio in menu / selection screens

So far only sounds that can be heard while the game is in play have been covered; this does not include other parts of video games where sounds and music are also present (such as cut scenes). However, sounds can also be heard during the selection / menu screens. It should be mentioned that only two types of sound can be heard in these screens, namely music, which is the "soundtrack" in the background that fulfils the sole purpose of supplying the player with a tune, and sound objects, which are only heard whenever the player makes a selection.

The music heard in the menu screen can play an important role. Many video games have specific themes connected to them, and when a player is confronted with music every time he starts a video game (this first screen is called the "title screen"), he will know the melody by heart in a short space of time. Chan (2007) likens this to theme music used in television series. However, he falsely states that "...one does not hear the title music again during gameplay." The music that is heard in the opening screen is often the basic, standard form of a theme, with developments of the theme occurring later in the game, to match what is going on within the gaming universe.

Take for example the video game *Deus Ex* (2000), which opens with the *Deus Ex* theme at the opening selection ("title") screen. Modified versions can be heard later throughout the game as the player progresses. These "variations" would not have been so noticeable if a clear theme had been absent. Also, in the sequel, *Deus Ex: Invisible War* (2003), the

selection screen plays a different, modified version of the original theme music, an obvious reference and connection to the first game.

Another good example is the series of *Unreal Tournament* games. Though these games are not famed for their music, the same melodies can be heard in different guises throughout the series. This coincides with the visual aspect of the game; many popular levels from older games in the series are revamped and updated to make reappearances in later games. The music that accompanies these updated levels is also modernized to match the upgraded visuals. Most noticeably, the latest game in the series, *Unreal Tournament 3* (2008), uses the same theme music in the selection screen, though heavily modified, that was used in the first game in the series. This plants a sense of tradition and recognition with players of the series, which will make subsequent games in the series easier to familiarise with.

The sound effects heard in the menu screens are of secondary importance to the music. Except for confirming that the player's button press did indeed register on the gaming system, the sound effects can offer little more than reaffirming the gaming universe, for example, having electronic sound objects in the menu screen to a game set in a science fiction environment. Stockburger (2005) labels these sounds as "Interface sound objects". He notes that certain menu screens, such as the load / save screen, can be integrated into the gaming environment (take for example the typewriter saving scheme used in *Resident Evil*). However, even in cases like these, it is always clear when the player is in the gaming universe or in a menu screen.

4.2 Video Game Music

Now that the role of music is established within a video game, the next step will be to look at the music itself.

4.2.1 Stereotype

Even with the wide range of video game music being heard today, video game music is still regarded by many in stereotypical terms. Leonard (2001) describes the first games with sound:

> The audio from these games was simple and repetitive, designed by programmers to fill the silence of the living room or arcade. These tonal sounds had a [dramatic] impact on the design of game music from that point onward. [....] However, musical passages for games such as these were widely

> recognised as gamey. Within the context of electronic media, the term gamey (adj.) ascribes the qualities of undecorated, electronic and tonal to a passage or score.

Unfortunately the experience of these early samples of video game music became stuck in the minds of the public. According to Belinkie (1999), 66% of college students can still hum the melody of the immensely popular video game, *Super Mario Brothers* (1985), even though many of them have not played the game in years (the survey was taken at Trumbull College in Connecticut, USA). Though the tune of this video game is clearly very popular, video game music has developed immensely over the last two decades; this stereotype is no longer accurate.

Other authors have already mapped out the development of the technology associated with video games of the last 30 or so years (See Belinkie, 1999), and it is clear that whoever is involved with the music production has a lot more freedom than they did even 5 years ago. It is now possible to have fully pre-recorded soundtracks accompany a video game, meaning that any genre of music, from pop to classical, is fully realisable on today's video gaming hardware. Composers also no longer need much computer programming knowledge to write music for video games; they only need to focus on the music.

Even though composers of video game music were previously forced to prune back their compositions to accommodate the technological restraints of earlier gaming hardware, video game music still covered many musical genres. Belinkie (1999) interviews Michael Huang, who claims that "... [video game] players have few preconceived notions as to how [video game music] should sound", and that "...game musicians are more experimental when it comes to creating music".

However, before technology made this possible, composers were progressively more limited to what they could do the further back in history you go. It is the music from these early gaming systems that gave video game music its stereotype, and could therefore be called "video game music", just as Western art music is collectively called "Classical music". For the sake of clarity it might be a better idea to call this type of music "Early video game music".

Regardless, at present it is quite easy to classify the genre in pre-composed video game music. For example, the music used in the Final Fantasy series, composed by Nobuo Uematsu, can be classified as pop music. What is interesting is that he has used the same

themes over many different games, from the early games that only had basic synthesisers for audio, up to more advanced systems that allowed the use of full orchestral writing. Yet his style remains recognisable even though the means of audio output is so vastly different.

In summary, even though video game music can be almost any music from any genre, it still retains a unique identity (the "stereotype" left over from its earlier years).

4.2.2 Types of video game music

Because of the mélange of genres and means of incorporation being implemented in video games, it would be helpful to start by dividing video game music according to its origin. In his study, Chan (2007) compiled a typology of three video game music "genres", namely:

I. Licensed music
II. Dramatic orchestral scoring
III. Popular styled music

However, Chan is quick to point out that this typology is not applicable to early video games, but rather should only be applied to video games released in 2005 and 2006. Also, there are many soundtracks to video games that would not comfortably fit into any of the above categories (examples are given below).

It will be attempted in this thesis to find categories of video game music that can be applied more generally, so that games from earlier eras can also be included. The focus is the origin of the video game music, not the genre of the music itself. The reason for this is that early video game music does not fit into any existing music genre (although this early music is what is responsible for the video game music stereotype, as discussed above).

Also, by focusing on genre, the video game is circumvented entirely, therefore many significant aspects of video game music, such as the way it is implemented into a game, may be overlooked. Therefore, it would be better to focus on the origin first, and then on the genre; this is how video game music is studied in Chapter 6.

4.2.2.1 The use of composed music in video games

The first type of video game music is pre-composed music. The soundtracks of these games are specifically commissioned by the developers of the video game and will only ever be heard in the video game (or other incarnations, such as motion pictures, based on the video game). In previous decades this was almost the only type of music being heard in video

games; the gaming systems had very basic synthesizing abilities, forcing the composers to be creative within the limited sound environment. More recently, it has become possible for a video game to have a soundtrack that is completely pre-recorded, meaning that any music is now possible to be incorporated into a video game. Orchestral soundtracks are becoming increasingly popular because of ever-expanding video game developing budgets.

The "dramatic orchestral scoring" mentioned in Chan's (2007) study would fall under this category, as many soundtracks composed for video games, especially recently, could be considered "orchestral". However, many works composed for video games are not orchestral, yet are still useable as video game music. Chan includes these works under a different category as "popular styled music", even though it is pre-composed all the same.

Also, not all music composed in a western classical idiom for video games are orchestral (see Chapter 4.3.1). It would therefore be more inclusive to rather talk of pre-composed music in general than trying to apply existing musical genres to the typology.

4.2.2.2 The use of pre-released music tracks in video games

The second type of video game music is licensed music tracks. It is possible for a video game to consist entirely of music that was not written for the game, in other words, to use music that has been produced for independent commercial release. An example of this is the *Grand Theft Auto* series (from the third instalment onwards), where the soundtrack consists entirely of previously released music. This seems to work very well in the series; for example, the fourth instalment, titled *Grand Theft Auto: Vice City,* is set in the 1980's. The music consists of hit singles from the era, immediately placing the player within the milieu of the game.

This is the only category that directly correlates with Chan's typology of video game music. He aptly refers to this type of music as "licensed music", also using the *Grand Theft Auto* series as an example, stating that it is "...not surprising that some video games use licensed popular songs [as means of] defining an era or a place that the gaming environment is trying to recreate." (2007).

4.2.3.2 The combination of composed and pre-released music

Lastly, video games can of course consist of both specially composed and pre-released music. When this is the case, the specially composed music is usually seen as the soundtrack of the game (for example, *Fallout 3* has a separately released original soundtrack, but only the

music composed for the game itself is featured; the licensed tracks that can be heard throughout the game are not included).

For instance, *BioShock* (discussed in Chapter 4.3 in more detail) consists of an entirely non-diegetic soundtrack, especially composed for the video game, as well as various snippets of previously released singles from the 1930's to the 1950's, being incorporated as diegetic sound objects within the gaming environment. A player might not notice the difference at first as he plays through the game, yet the combination of the two (diegetic and non-diegetic music) succeeds in creating both a believable universe for the player, as well as supplying the correct atmosphere for the in-game surroundings.

Chan mentions the fusion of orchestral writing with popular music as "popular styled music"; however, this only describes a very specific genre of music, and does not differentiate between what music is pre-composed and which tracks are licensed.

4.2.3 Examining video game music

Now that the origins of video game music can easily be established, it is clear that there is no problem in ascertaining the genre of the music in question. However, the next step will be to discern the patterns found within specific video gaming genres, as well as general patterns that might be found over the entire spectrum of video game music.

It should be kept in mind that the music in video games is not fixed and should therefore be examined from a new perspective. When isolating the music from the video game it is the same as any other music. The means of music incorporation is also an important question, and will be discussed after the issue of genre has been examined.

CHAPTER 5: GENRE

A commonplace approach to the understanding of a complex phenomenon is to break it down into its constituent parts. This practice owes its existence to the Natural Sciences, where organisms are divided into species, genus, family, et cetera, to facilitate identifying organisms and comparing them to others.

This approach is applicable to others disciplines as well. In the case of the arts, one refers to genre, which can then be further be broken up into sub-genres, and so forth. What are the functions, patterns, forms, styles or structures that define a certain genre? In literature, genre is established by narrative elements. According to Lacey (2000: 136-137), the elements which could help establish genre in film studies could include setting, character, narrative, and iconography. In music, genre can be established various means.

5.1 Genre in Music

When talking about genre in the context of music, it should immediately be noted that genre is not approached the same way across the entire spectrum of musical study. According to traditions of art music, genre is usually established by function, setting or instrumentation. For instance, the violin concerto is considered to be a genre by itself, even though genre might include works from the Baroque era or the 21st century, meaning that even in the same genre, one can find works of different styles or eras.

However, when looking at Popular Music (music that is distributed through mass media), "classical music" is considered as a genre spanning all art music, therefore consolidating all the genres set down by art music into a single umbrella term. In the same breath, "Rock", "Hip Hop" and "Rap" are all seen as independent genres, even though they would be considered as sub-genres (or better yet, "styles") of Popular Music from the Western Classical perspective.

It is clear that different parameters need to be set according to the music being examined. As already mentioned, function is traditionally the defining factor of genre in art music. An opera, for instance, is a work for orchestra, soloists, and choir. An oratorio is also a work for orchestra, soloists and choir. However, the difference lies in the social function that it fulfils: An opera is designed for secular entertainment, and is usually performed in a big opera house or theatre, attended by appreciators of opera and lovers of art music in general. An oratorio,

on the other hand, is a religious work, and would be equally welcome in the concert hall or the church hall, to be listened by both classical connoisseur and average churchgoer.

Furthermore, compositional techniques could also dictate genre. For instance, piano music by itself is to be considered a genre; therefore one differentiates between piano genres through form. The piano sonata is a genre by itself, just as character pieces for piano fills another.

The terms "genre" and "style" should not be confused. A genre of music might contain works from many different eras (such as the toccata, which has its roots in the Late Renaissance, yet toccatas are stilled composed today), meaning that a genre might include works of many different styles.

5.2 Genre in Video Games

In the case of video games, "genres" already exist that are presently being used in common discourse. Many of these genres have been in use for years, being established by consumer rather than scholarly means. If one should visit one of the many websites dedicated to video games, or read a video game magazine, games that are discussed will already be labelled as part of a certain genre, even years before their release. One becomes so well acquainted with these genres that you know what to expect even before you play a game.

It should be noted that, even though one speaks of video game genres, they are technically not genres. Because the setting of a video game remains largely unchanged from game to game, the "video game" would be considered the genre. As for differentiating between games, it would be better to refer to "types" of video games. However, for the sake of continuity, this thesis will still refer to video game types as "genres".

When genres are mentioned in video game studies, authors are quick to point out that genre classification is by no means absolute, and that there are many exceptions to any single rule. Leonard (2001) explains:

> Even the most stringent game classifications fail to encompass all games: there is always at least one game that belongs at the loci of multiple categories. These games are more than cross-pollinations of genres: they are melting pots of ideas and processes, so that they cannot viably fit in one, two or even three distinctions.

In video games, the principal element that has been used so far to establish genre is its interactive content (also known as "gameplay"). This way of dividing games into genres

makes the most sense commercially, for then a potential buyer would know what type of gameplay to expect without having prior knowledge of the game. When trying to find patterns within the stock characters, narratives or iconography in various video games, it will soon become clear that no parallels can be drawn between the gameplay of a game and these elements. In other words, the gameplay, or genre, of a video game does not dictate the narrative, stylistic or aesthetic content of the game.

Different video games might have the same iconographic content: Take for example the Fantasy genre in film and literature, which is usually rife with magic and mythology. Video games with this content include the *Warcraft* series (first entry released in 1994) and the *Final Fantasy* series (first entry released in 1987). However, the *Warcraft* series is considered to be part of the Real Time Strategy genre, where the *Final Fantasy* games form part of the Role Playing Game genre; these two video game genres have almost no similarities with regards to gameplay.

For this reason, Wolf (2001:117), attempts to give a comprehensive selection of video game genres, selected according to interactivity, rather than iconography. This is a wise choice with regards to video games, because unlike film and literature genres, iconography can be misleading in video games. While many different games might belong to the same milieu, for example ancient Egypt, and therefore share the same iconography, video games based on this can encompass many genres.

While he includes most of the widely-used genres in his study, he also adds many other "genres" which are in fact better described as "elements" which can be found in various video games. An example of this would be the "chase genre", which can hardly be justified being allocated a genre of its own, seeing it is only an element incorporated into other genres. Nevertheless, the addition of these elements makes Wolf's study of genres one of the most conclusive so far.

(Of course, the developing nature of the video gaming industry creates obstacles for researchers to make relevant conclusions without them soon becoming obsolete. Especially with regard to video game genres, one cannot assume to have successfully created a taxonomic scheme in which all video games will fit, for it is in the nature of this dynamic industry to render some genres irrelevant while simultaneously creating new ones, or to absorb existing genres into others. However, not much has changed since Wolf's article in 2001.)

Because Wolf names 43 different genres in his study, it would be unrealistic to give a complete list here (Please refer to Appendix A for the complete list). A few examples (Wolf, 2001):

> Adventure: Games which are set in a world usually made up of multiple, connected rooms or screens, involving an objective which is more complex than simply catching, shooting, capturing, or escaping, although completion of the objective may involve several or all of these. Objectives usually must be completed in several steps, for example, finding keys and unlocking doors to other areas to retrieve objects needed elsewhere in the game. Characters are usually able to carry objects, such as weapons, keys, tools, and so on. Settings often evoke a particular historical time period and place, such as the middle ages or Arthurian England, or are thematically related to content-based genres such as Science Fiction, Fantasy, or Espionage.
>
> Fighting: Games involving characters who fight usually hand-to-hand, in one-to-one combat situations without the use of firearms or projectiles. In most of these games, the fighters are represented as humans or anthropomorphic characters.
>
> Platform: Games in which the primary objective requires movement through a series of levels, by way of running, climbing, jumping, and other means of locomotion. Characters and settings are seen in side view as opposed to top view, thus creating a graphical sense of up and down as is implied in Platform. These games often also can involve the avoidance of dropped or falling objects, conflict with (or navigation around) computer-controlled characters, and often some character, object, or reward at the top of the climb which provides narrative motivation.

Even though these three examples are widely known genres in the video game community, many other definitions exist which might not match Wolf's definition.

At IGN.com, a list of 48 genres can be found when entering the reviews section (online source 1). This matches many of the genres mentioned in the article "Video game genres" on Wikipedia (online source 2), though last-mentioned is structured in a hierarchical fashion, containing many sub-genres not mentioned on IGN.com. (Please see Appendix A for the complete lists of genres).

Most of these genres, interestingly enough, do not appear on Wolf's list of 43 genres. IGN lists more than six genres containing the word, "action": for example, Action, Action Adventure, Action Compilation, Action RPG, Action Simulation and Music Action. Wolf's list does not contain one genre which includes this term.

This raises the question as to which interpretation is most valid. Having six genres with the word "action" might prompt "action" as being the genre (or the umbrella-term), with the others falling under sub-genres. Of course, it is unclear what IGN's criteria for "action" are.

This also begs the question whether having so many genres (or "types", as mentioned earlier) of video games is scientifically acceptable, especially when these genres contrast each other. Solving this problem would mean an entire overhaul of the taxonomy of video games; completely new perspectives would need to be used to categorise video games more efficiently. However, if this exercise would be adopted, it might be entirely futile: the current genres are so well-known already, that it would be futile to try and integrate a new system of classification into the gaming world.

Nonetheless, there are certain genres which are recognisable to most players of video games; it is these genres that will be discussed in this work. In the next chapter these genres will be described, before drawing conclusions that would enable one to understand the significance of musical genre in the context of video games.

CHAPTER 6: VIDEO GAME GENRES AND THE MUSIC ASSOCIATED WITH THEM

6.1 First Person Shooters

A First Person Shooter, as the name suggests, is a video game played from the first person perspective, and involves the use of some form of gun or weapon, real or fictional. It is frequently abbreviated as "FPS". Because of its three-dimensional nature, it is usually preferred to play a FPS with a mouse and keyboard, as this facilitates controlling the in-game avatar; the keyboard controls the placing of the avatar within the gaming universe, where the mouse controls in which direction the avatar faces. For this reason many FPS's have initially only been released on the PC in the past (for example *Doom, Quake* and *Deus Ex*), as playing a FPS with a gamepad is much harder. Recently it has become significantly easier to connect a keyboard and a mouse to a stand-alone gaming console and FPS's seem to enjoy just as much attention on consoles as they have been enjoying on the PC all these years.

Although First Person Shooter warrants being a genre by itself, it is frequently seen as part of a larger classification. Wolf (2001:131), mentions FPS very briefly as part of the *Shoot 'Em Up / Shooter* genre, which seems out of place: The games that form part of his definition of the *Shooter* genre are mostly two-dimensional and were played in the 1970's and the 1980's, and could fill the obsolete genre of *Shoot 'Em Up* all by themselves.

Alternatively, the list of genres on wikipedia.org titled *Category: Video Game Genres* (online source 2) lists *First Person Shooter, Shooter* and *Shoot 'Em Up* each as separate genres, although the *Shooter* article mentions that the FPS is a type of Shooter, while at the same time *Shooter* forms part of the *Action* genre.

Albeit confusing, this goes to confirm that even though these terms are used in an everyday fashion by the gaming community, it still remains hard to define concretely. Nonetheless, there are certain traditions and expectations associated with First Person Shooters. Although not the first FPS to have been created[7], Turner and Bowen (2003) mentions how the original *DOOM* (released in 1993) have been the "genre-defining masterpiece" that inspired the FPS's that followed it. This seems to be true; the company that designed *DOOM,* id Software, seems to prefer the FPS genre for the bulk of their game releases, and other FPS's that have been released since 1993 seem to follow the winning recipe set down by *DOOM*.

[7] According to Garmin (2005) the two candidates for the first FPS are *Maze Wars* and *Spasim,* both released in 1974.

The traditions of the FPS seem to be connected mostly to gameplay, and not to iconography or plot issues. FPS's usually give the player a multitude of weapons to play with, usually starting with a melee weapon and the equivalent of a semi-automatic sidearm. Other weapons, the next more powerful than the last, are usually spread out through the game, so that the most powerful weapon can be obtained close to the climax of the game. The same can be said toward the enemies that the player will face throughout the game, with the weaker enemies being confronted at the opening, and the most powerful enemies being encountered at the close. As with many video games, and definitely most FPS's, the game usually ends in some final battle with a particularly strong enemy (this enemy is usually unique and is referred to in the vernacular as a "boss").

The music of FPS's also seems to have followed a tradition of sorts: Following the grim and violent content of the original *DOOM*, which makes use of music that can be associated with metal or electronica, the "DOOM clones" makes use of the same type of music. This is evident in the equally violent game *Quake,* also released by id Software in 1996, which contains music written by Trent Reznor from the band, *Nine Inch Nails* (online source 3).

It is probably for this reason that Leonard (2001) states that, since the release of *DOOM* in 1993, other shooters have followed its example and use either silence, grunge techno or popular heavy metal bands to complement the action. Pidkameny (2002) describes the FPS genre as "the most atmospheric", and states that "[m]usic in FPS can range from creepy, ambient melodies to thumping techno rhythms".

The music in FPS's is composed in much shorter segments, and is incorporated into the game much more dynamically than in slower paced games. This is to match the fast pace of many FPS's, where action and states of calm can be unpredictably short. However, the FPS genre has developed considerably since the original *DOOM*, and with it, the music used in it.

Looking at recent releases of FPS's, it is clear how far the genre has come since 1993. Four recent FPS's will be examined, to consider both the elements that stay true to the genre, as well as innovations and deviations that develop the genre, especially with regards to the music encountered within the game.

6.1.1 Far Cry 2

Far Cry 2, released in 2008, seems to follow the blueprint expected from a FPS. The entire game consists of the protagonist performing various missions with a variety of firearms, all

modelled on real-world counterparts. The entire game is set in an unknown African country where civil war is waging. The choice of setting might be to show off the "most realistic fire ever seen in a game" (according to the *Far Cry 2* box art), a graphical achievement in animation technology which can frequently be exploited on the dry African terrain found throughout the game.

6.1.1.1 Means of music integration

The game is built on the Dunia Engine, which was developed specifically for *Far Cry 2*. Among many features offered by the engine, such as the open-ended gaming environment the player can explore (in contrast with closed and linear levels associated with other, especially older, FPS's), the engine also includes supposed "dynamic music" (Amancio, 2008). This is probably in contrast with pre-set background music, which is looped *ad infinitum*, as can be heard in many other video games.

Under closer inspection it is clear that the music in the game follows certain rules and patterns, and is therefore not as dynamic as being claimed. For instance, when the player is travelling within the relatively expansive gaming environment, and is not within a close threat from being attacked by the enemy, calm music will phase in (probably to break the silence and provide a type of "soundtrack", or background music). It is always an excerpt from a selected amount of music tracks that is phased in, so after a while a player will, if paying attention, realise that if this music is playing, they are safe from enemy fire and can continue exploring without fear of ambush.

Similarly, if this music is absent and the player is in an area that is seemingly clear of enemies, this might be an indication that enemies are in range. This nullifies the claim of incorporating a dynamic music system, because basically all that happens is that the music phases in and out of the game in reaction to what is happening within the game, basically boiling down to an open-ended type of scripting; this is nothing new.

How successful this method of music integration is, is debatable. This is especially applicable when considering the fire fights in the game, which makes up the bulk of the gameplay. Usually when the player attacks, or is under attack from the enemy, upbeat music will phase in to accompany the action on screen. The problem is that this "attack-music" will always phase in, regardless of whether either the player or the enemy is aware that they are being attacked. This can ruin the gameplay to a certain extent: The player might be alerted to

enemies that are closing in on his position in-game even though they were supposed to remain unaware of it.

When the player however does encounter hostile characters, upbeat music is immediately phased in to accompany the action on-screen. When the conflict is resolved with the player either killing all enemies in the area or fleeing a sufficient distance, the upbeat music fades out again.

The structure of the music is therefore dictated by the actions of the player in-game. Although the programming of musical incorporation is elementary, a player who is not listening with a musical ear will not immediately notice how music is being phased into relevant sections of the game.

6.1.1.2 Music style

In a feature on music4games.net, the composer of the *Far Cry 2* soundtrack, Marc Canham, discusses his ideas behind the music for the game. Canham (2008) claims to have been "keen to avoid those all too common Hollywood cliché soundtracks, and deliver something with artistic integrity" and seems to strive toward this goal by using, among other things, an unusually grouped string sextet, various African percussion instruments, synthesizers and a Senegalese male vocalist.

According to Canham, he wanted to avoid the large orchestras used in action films and games, and opted for the small, exposed ensemble to get a "raw and organic" sound. Claiming to have "[e]xtensively research[ed] genuine African rhythms", he strives towards an ethnically-inspired score with rhythmic motifs to accompany the parts of the game where the plot is advanced.

With the soundtrack of *Far Cry 2* being released digitally on iTunes in 2009, Steven Kennedy (2009) gave a review of the music, stating that the soundtrack can be described as "a lot like a chamber world music album that recalls early efforts in the classical music world by groups like the Kronos Quartet." Kennedy seems to be impressed by the originality and intimate scoring of the music, stating that it "...plays against expectations for an action game [and] creates a more realistic sound..."

The composer probably had this in mind when composing for *Far Cry 2*, so that the intimate and real-sounding music will match what is going on in the game, which goes to almost

unnecessary lengths to demonstrate the ugliness and "realism" of civil war. While the graphics in-game can be beautiful and varying, showing off different African terrains and firework-like explosions, it also demonstrates many gory and violent acts in pristine clarity.

6.1.2 BioShock

From its conception, through development stages and up until its release, the game *BioShock* was receiving a lot of attention. The hype paid off; *BioShock* was released in 2007 with critical and commercial success. The game plays off in 1960 and borrows a great deal of its iconography from that era, although the game contains the type of supernatural phenomenon that is associated with the Science Fiction literary genre.

6.1.2.1 Means of music integration

The interesting thing about *BioShock* is how it integrates music into the game. It has a soundtrack in the traditional sense, i.e. it is of non-diegetic origin, and fulfils the role of immersing the player into the game and giving a cinematic feel to the proceedings. The soundtrack was composed by Garry Schyman specifically for the game.

However, music can also be heard at different locations in the game that is of diegetic origin, including gramophones and pianos being played by NPC's[8]. It could be argued that these instances are only sound effects, for they are usually of relatively short duration, but being mostly famous songs from the 30's through the 50's, (like "Beyond the Sea", a song made famous by Bobby Darin in 1959, which can be heard early in the game) there is no denying that it is indeed music, and not just a sound object.

Both the diegetic and non-diegetic music succeeds in creating a believable atmosphere for the player to move in, yet like in film, non-diegetic music is frequently absorbed without the audience being cognitively aware of it. The diegetic music on the other hand stands out like a sore thumb; in the gaming universe where most of the 1950's aesthetics have degenerated into what looks like a horror movie set, it is strongly contrasted with the often beautiful music traced to a diegetic source.

The main difference on how the music is implemented in *BioShock* is that the composed soundtrack (non-diegetic) is composed to accompany certain scenes in the game, meaning that certain *events* will cue in the music, whereby the diegetic tracks will be heard in certain

[8] NPC stands for Non-playable Character, a term frequently used to describe in-game characters the player can interact with, but cannot control. NPC's are also never controlled by other human players.

locations of the gaming universe, meaning that the player might miss these tracks if he does not enter a specific location.

Music structure in *BioShock* is therefore dictated by both the actions of the player in-game, as well as the entry of certain locations in-game (the latter being absent in other games, such as the previously discussed *Far Cry 2*).

Interestingly enough, the original soundtrack of *BioShock* contains only the music that was composed by Schyman (exclusively non-diegetic music), and none of the licensed tracks that was used throughout the game.

6.1.2.2 Music style

The two types of music also greatly differ in style. In an interview with music4games.net, composer Garry Schyman (online source 4) discusses how he tried to get an "early 20th century classical sound" for the music score. According to the composer, the soundtrack contains elements of aleatoric music, musique concrète and serialism, which is starkly contrasted by the tonal, diegetic music.

The composer refers to a "solo piano work in the style of late Rachmaninoff [sic]" which he wrote for a specific scene in the game; on the soundtrack it is named "Cohen's Masterpiece (Cohen's Scherzo #7)"[9] regardless of the fact that Rachmaninoff never wrote a solo piano work by the title of Scherzo (although he did write an Orchestral Scherzo when he was 14). Upon listening to this work, it can be found that the style is actually nearer to Romantic works of Liszt and Chopin, and sounds very close to the latter composer's so called "Ocean" etude, Opus 25 Number 12.

6.1.3 Fallout 3

Also released in 2008, *Fallout 3* is included in this chapter because of its many genre-breaking properties. Although it contains elements which are associated purely with the FPS genre, it can also fit into many other genres. The player can decide to play the game either through first person or third person perspective, which is already an obvious departure from the bulk of FPS's[10], although this does not mean that it cannot be classified as a FPS; indeed, the weapons system is decidedly that expected from a FPS.

[9] Cohen is a secondary antagonist in the gaming universe and resembles an insane artist / composer.
[10] Other FPS's, such as *Unreal Tournament 2004*, also have the option to play from a third person perspective, although it renders the player unable to aim properly and defeats the main purpose of a FPS.

However, because *Fallout 3* has a levelling-up system to build player-character properties, which is in turn associated purely with the RPG genre, *Fallout 3* is not a typical FPS. Neither is it a typical RPG, which usually does not offer the option to play from a first-person perspective. IGN.com, a gaming website which offers a plethora of information on up-and-coming games, unhelpfully classifies *Fallout 3* as an "Action RPG" (online source 5) (it should be noted that the Action genre in gaming is notoriously difficult to define: frequently two definitions will contrast each other, and often the genre is applied to a multitude of dissimilar games when in fact they are a combination of other genres).

Regardless, even when *Fallout 3* cannot be considered a "pure" FPS, it certainly owes much of its gameplay to the FPS genre, and its music will be inspected accordingly.

6.1.3.1 Means of music integration

Departing from the almost purely non-diegetic soundtrack of *Far Cry 2* and the contrasting sources of music used in *BioShock*, *Fallout 3* conveys its music to the player through almost exclusively diegetic means. This is not to say that there is a total absence of non-diegetic music in *Fallout 3*, indeed, there exists cut scenes in the game in which a soundtrack is heard. This however means that the music in these scenes was composed as if it was a short movie, and should be treated as such.

When looking solely at the gameplay (the times when the player is in control), the player will frequently find himself in a gaming universe void of any non-diegetic music. At times like these the game is not silent – there are a multitude of effects which could be classified as ambient sounds, such as the wind blowing.

However, the player has the option of turning on a radio on his player-character, which offers a few radio stations to listen to, depending on where the player-character is within the gaming universe. As with any typical radio station, there is usually a DJ on the air, talking about various topics, and of course there is music. This is the main source of any obvious music in *Fallout 3*, and it is significant in more than one respect.

The first is the reception of the radio: Depending on the spatial positioning of the player-character in the gaming universe, the signal might be weak or strong. When the player-character ventures into far-off, unexplored places, the signal might be gone entirely, and the player will only hear static instead of music. This reinforces the idea that the player is in an unknown area, that anything can happen, and that sanctuary has been left behind. The

opposite also applies: When the signal is strong, the player will know that there are other NPC's, or "civilisation" close by.

Secondly, the music that can be heard in *Fallout 3* reinforces the aesthetics of the gaming universe. According to the gaming manual, *Fallout 3* plays out in the year 2277 in a society that "...remained locked in the cultural norms of the 1950's". The music in *Fallout 3* mirrors these cultural norms, making use of licensed tracks by recognised jazz artists such as Billie Holiday and The Ink Spots.

However, the radio on the player-character's person is not the only source of diegetic music in *Fallout 3*. Occasionally the player-character might stumble upon a robot of sorts that broadcasts one of the radio stations. This way of integrating music into the video game is similar to that of *BioShock*'s diegetic music.

BioShock and *Fallout 3* not only share this means of music integration, but both video games are also rife with 1950's American iconography, even though the two games differ from each other substantially in other departments.

6.1.4 Unreal Tournament 3

As a FPS, *Unreal Tournament 3* does not beat about the bush with interesting plotlines or developing structures for player-character advancement. The game rather focuses on action: Fluid gameplay, a no-nonsense approach to weapons and player-character health, impressive graphics and special effects, all playing off at a fast pace.

This blunt approach can be found to be the case with the music as well. Because each round is played in a specific enclosed "arena", there is no need to vary the music, for the player cannot leave the set level. This means that each level has a set music track, which just loops when it is finished. In the case of *Unreal Tournament 3*, the music really only is ever used as background music, providing thumping rhythms to accompany the action onscreen. The music is written and composed by Jesper Kyd and Rom Di Prisco, and could probably be described as dance or techno music.

However, players who have played the previous games in the Unreal Tournament series might recognise the music at the main menu screen; the same music has been used in previous titles, though with different instrumentation, so at least there is an "Unreal Tournament" theme which players can aurally identify the series with.

In contrast with the other three games discussed above, there are absolutely no sources of diegetic music within the game.

6.2 Role Playing Games

The music of Role Playing Games (abbreviated “RPG”) resembles film music, because in both cases the music is composed as a soundtrack. Frequently there will be tracks composed for certain areas in the gaming universe, such as a village or a forest, or tracks will be composed that are linked to certain of the main characters. Often there will be a connection between a specific gaming environment with specific character(s), and a theme could be used to reference both. The main difference between RPG music and film music though, is that film music is composed with a very specific time frame in mind, where RPG music, when played in-game, must be flexible to adapt to any time frame.

An example of this would be the ”Archadia” theme in the game *Final Fantasy XII*, which is used when the player finds himself in the physical location of the city of Archadia, but also whenever a member of the Solidor-family (who are the rulers of Archadia) appear in cut scenes. This theme is therefore a reference to the family of Solidor, as well as the city of Archadia, which in turn strengthens the significant connection this family has to the city within the gaming universe.

Composers are able to compose much lengthier sections of music for RPG's than other genres. When the player is within a specific gaming environment, the music track will play from start to finish, and then loop. Because there are many parts within a RPG where the player will take their time to explore a certain area, talking to NPC's, buying items, or doing side-quests, they will be exposed to the soundtrack much longer than in games of other genres. RPG’s are also notorious for having exceedingly long cut scenes, which can be treated like mini movies from the composer’s perspective.

6.2.1 The Final Fantasy series

One of the most famous video game composers today, Nobuo Uematsu, composed most of the music for the immensely successful *Final Fantasy* series.

It is important to note that every *Final Fantasy* game is set in a totally different universe, with its own storylines and characters. There are exceptions in the forms of sequels and prequels, but the rule of thumb is that every *Final Fantasy* game that is given a new number forms a new gaming universe (for example, the games *Dirge of Cerberus: Final Fantasy VII* and

Crisis Core: Final Fantasy VII are both connected to the *Final Fantasy VII* universe, but *Final Fantasy VIII* is a whole new universe by itself).

Despite this, there are certain elements which have appeared in more than one incarnation of the Final Fantasy series. Examples of this would include the presence of Chocobos (bird-like animals), a character named "Cid", and the use of the currency "Gil". There are many other elements which have been used, for totally different reasons, within different games in the franchise.

These recurring elements also include musical themes, with some themes tracing back to as early as the first game in the series. This is significant, for not only are there themes in each separate game for its own environments and characters, but there are also themes which have been used in every game of the series, thus tying all of the games together.

An example of this is the "Prelude" theme, which was used in the very first *Final Fantasy* game back in 1987, and has been used since in most of the *Final Fantasy* incarnations. It hasn't always been used as a prelude, though; *in Final Fantasy VIII* the theme can only be heard at the conclusion of the game, where it forms part of a medley, including the "Ending" theme used in the original *Final Fantasy*, and themes exclusively connected to the *Final Fantasy VIII* universe. The opposite can be heard in *Final Fantasy XII*, where both the "Prelude" and "Ending" themes are heard at the selection screen, even before the player starts the game.

6.2.2 Final Fantasy VII

There are numerous reasons why *Final Fantasy VII* is being singled out for further detailed study of all the games in the franchise. It was a huge success on the original PlayStation console, not only praised by reviewers, but also performing enormously well commercially. It is recognised by fans of the series as one the best examples of what an RPG should be, if not the best. It has been more than 10 years since its release, and many spin-offs have been released, including a sequel, prequel and computer-animated movies, all containing musical themes from the original game in one guise or another.

All the music in Final Fantasy VII is composed by Nobuo Uematsu, and he writes many memorable pieces for different characters and areas throughout the game. It should be noted that many different versions of the pieces can be found: the original music as it is used in the game (which can also sound different in the PC version, depending on which MIDI device

the player decides to use), the adapted versions that can be found in the spinoffs and movie, the reduced versions that are published for solo piano, and lastly the orchestrated version as performed at the *Final Fantasy* symphonic concerts. While Uematsu has a hand in all of these, he has had some help in the reduced and orchestrated versions.

6.2.3 Example: Musical themes and their significance – Character "Red XIII"

Red XIII, also known as Nanaki, is a quadruped beast resembling both lion and wolf. It is mentioned throughout the plot that he is part of a race of warriors, and that he is one of the last left of his kind. Born in Cosmo Canyon to a father named Seto and an unnamed mother, he is taken care of by the Canyon's elder, Bugenhagen, after his mother died. Before the events of the game he is captured by the Turks and taken to Midgar, where Professor Hojo tattoos him with the Roman numeral "XIII", and refers to him as specimen "Red XIII".

When the main character, Cloud, and his entourage enter the Shinra building in Midgar to rescue Aerith, she is trapped in a chamber with Red XIII; an experiment of Hojo. After both inhabitants are freed, Red XIII decides to join the party until he reaches Cosmo Canyon.

With this meeting, Red XIII's theme can be heard for the first time; it starts out with a simple crotchet – quaver – quaver rhythm played by a drum (in the MIDI version, it is played by a drum, doubled with a tambourine on both strong beats of each bar):

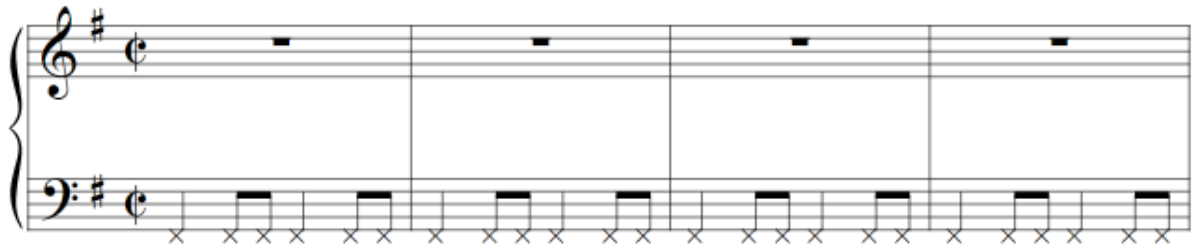


Figure 1: Piano reduction: "Red XIII's theme", opening bars (Uematsu & Nima, 1997:73)

This is followed by the A-section, where the distinct rhythmic pattern of the introduction is doubled by a banjo (played by the right hand in the official piano reduction), also acting as the harmonic vessel, and a new, simple theme is played by an acoustic bass (the left hand):

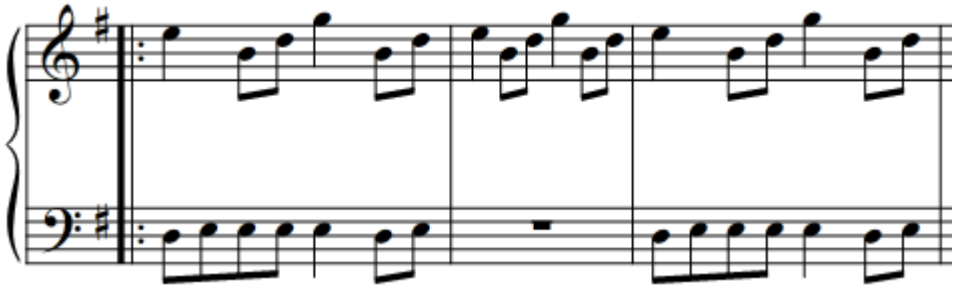


Figure 2: Piano reduction: "Red XIII's theme", A-section, mm. 5-7 (Uematsu & Nima, 1997:73)

The entire A-section is built on these two motives. The B-section consists almost entirely on sustained seventh chords (played by strings in the MIDI version), with melodic arabesques making appearances every now and then, four bars from each other (played by a vibraphone in die MIDI version):

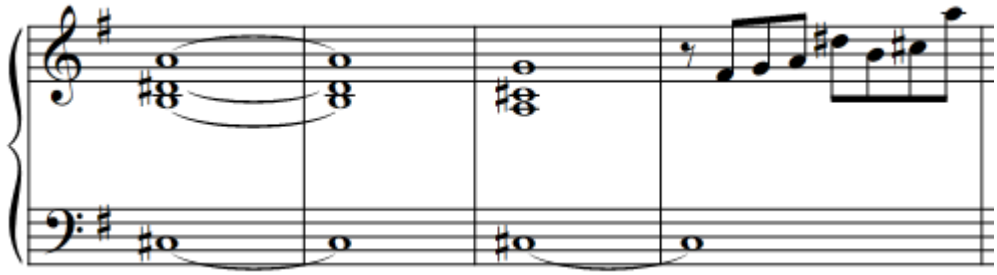


Figure 3: Piano reduction: "Red XIII's theme", excerpt from B-section, mm. 23 – 26 (Uematsu & Nima, 1997:75)

The whole composition is a mere 34 measures long, and at the end of the B-section, it flows directly back into the A-section, meant to be repeated *ad infinitum*. The reason it is composed like this is so that it will effortlessly integrate into the video game: There is no telling how long a player will take to perform any given action on-screen, and if the player is idle, the music is supposed to carry on indefinitely until the next scene. When music is composed like this, it repeats over and over without the player immediately noticing, and fades out when it is no longer relevant to what is going on on-screen.

The atmosphere of "Red XIII's theme" is tribal, and it reminds the listener of something that might be heard around the fire of a Red Indian tribe. Red XIII's avatar clearly was also inspired by the Indians: His red and orange fur can be likened to the russet-coloured skin of the native Indians of North America, the jewellery and beads, along with the markings on his

face seems to be ethnically inspired, and of course Indian folklore of animal spirit guides working together with humans might have also lent to the character's creation.

After the events at Midgar (where Red XIII joins the travelling party), the player will eventually visit the game-area known as Cosmo Canyon, the birthplace and home of Nanaki. As soon as the player enters the area, the composition known as "Cosmo Canyon" starts. The opening bars bear a very obvious resemblance to the motive heard in the A-section of Red XIII's theme:

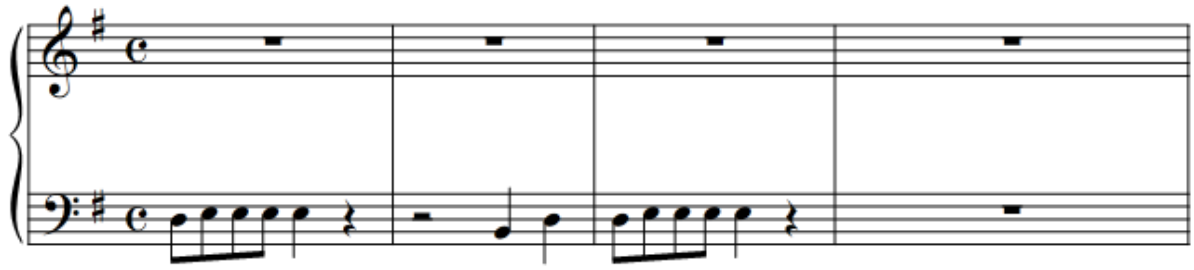


Figure 4: Opening bars of "Cosmo Canyon" theme, mm. 1-4 (Uematsu & Nima, 1997:147)

This is followed by the A-section, where this borrowed motive fulfils the role of accompaniment, while a new melody is being introduced that was not heard in Red XIII's theme:

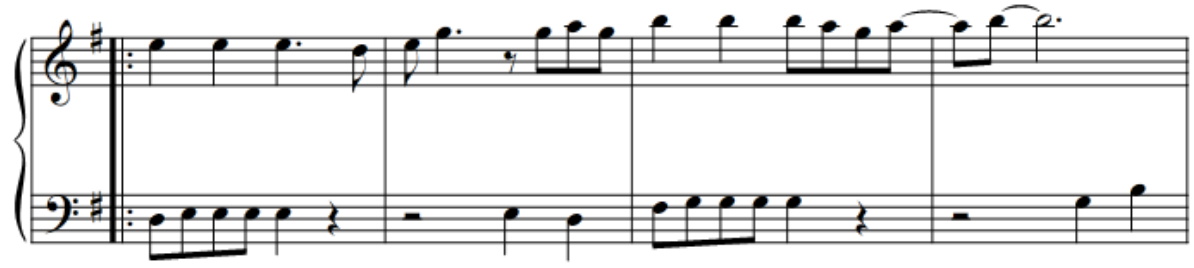


Figure 5: A-section of "Cosmo Canyon", mm. 11-14 (Uematsu & Nima, 1997:147)

It should be noted that, even though absent in the piano reduction, the rhythmic accompaniment on the drums and tambourine are also present in the in-game, MIDI version of the "Cosmo Canyon" theme.

Opposite from "Red XIII's theme", the B-section is not contrasting in "Cosmo Canyon", although a new melody is introduced, the accompaniment pattern remains virtually unchanged:

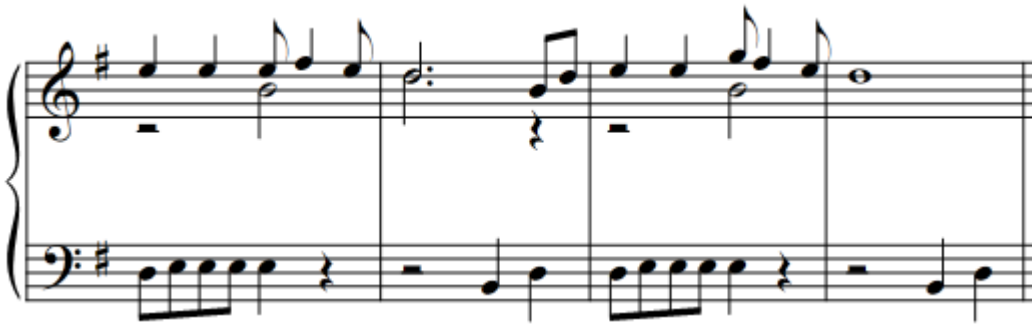


Figure 6: B-section of "Cosmo Canyon", mm. 31-34 ((Uematsu & Nima, 1997:148)

At the near-conclusion of the B-section, the distinct rhythmic pattern is heard in the left hand of the piano reduction, before a section that is virtually the repetition of the introduction, before finally repeating back to the A-section:

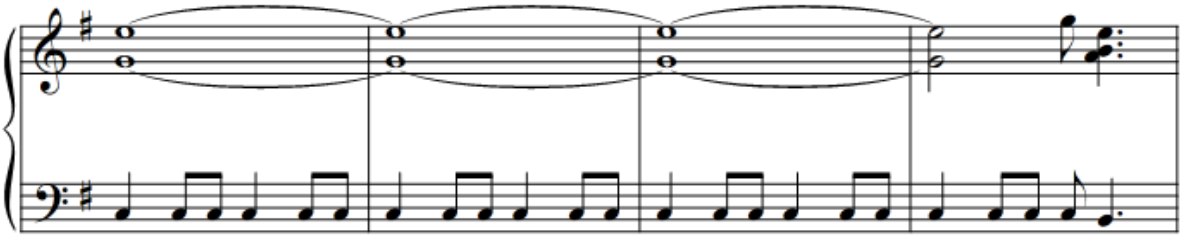


Figure 7: Excerpt from B-section "Cosmo Canyon", mm. 55-58 (Uematsu & Nima, 1997:149)

Like in Red XIII's theme, the piece is meant to be repeated indefinitely, to accommodate the unknown length of time the player might spend in the game-area.

When the player first enters Cosmo Canyon, Bugenhagen (called "grandfather" by Red XIII) welcomes home his adopted son, albeit from a different species. It is revealed that Cosmo Canyon was attacked when Nanaki was much younger, and he believed that his father, instead of facing the attacking army, became a coward and fled.

Bugenhagen then takes Red XIII (along with whoever else is in Cloud's group at that time) into a sealed cavern, to show him that his father actually single-handed kept off the invading force, though paying with his own life instead. At the end of this cavern, a statue, in fact the petrified remains of his father can be seen, still guarding the sealed entrance to Cosmo Canyon. At this Nanaki learns that his father was not what he believed him to be, and vowed to continue his journey with Cloud to fulfil his role as warrior and protector.

At this scene in the game, yet another theme is heard, and is clearly built on motives from the two previously discussed themes. Titled "Great Warrior", it begins with the melody that was heard in the B-section of the "Cosmo Canyon" theme, though being composed in e minor (instead of its relative major, G major, as used in the previous two themes) and the rhythmic percussion accompaniment being absent; it creates a much different atmosphere:

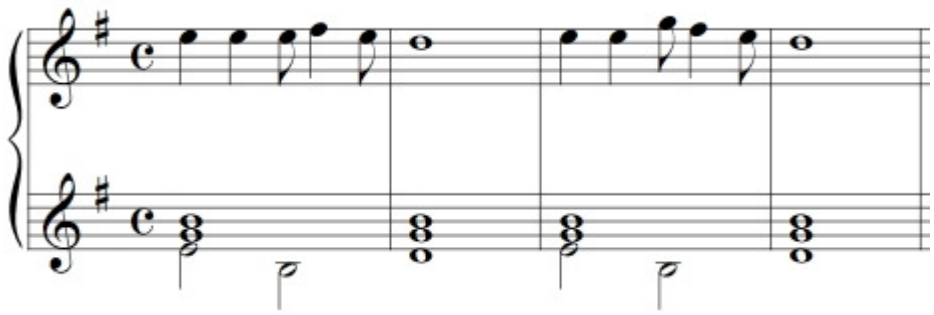


Figure 8: Opening bars of "Great Warrior", mm. 1-4 (Uematsu & Nima, 1997:153)

The B-section initially consists of sustained chords in the right hand and broken chord-like figures in the left:

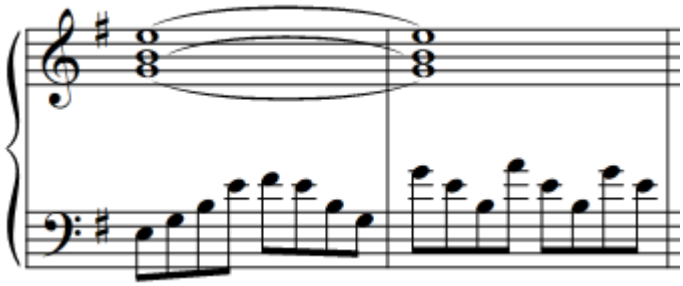


Figure 9: B-section of "Great warrior", mm. 17-18 (Uematsu & Nima, 1997:154)

This is repeated until a different version of the A-section melody can be heard:

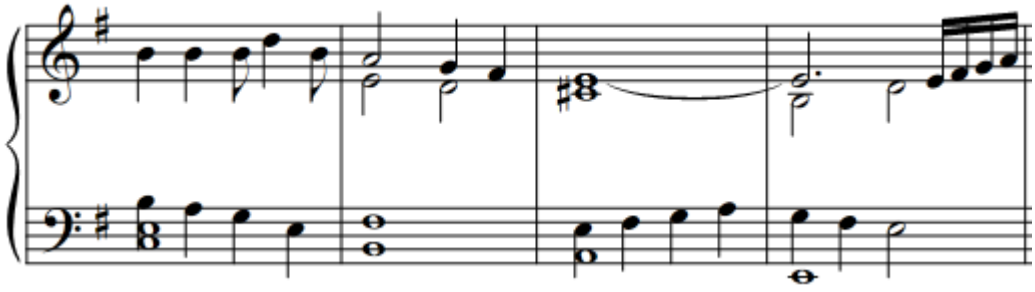


Figure 10: Excerpt from "Great Warrior", mm. 25-28 (Uematsu & Nima, 1997:155)

This is followed by the main melody from the "Cosmo Canyon" theme, though harmonized very differently, and going through foreign modulations before returning to the repeat of the A-section:

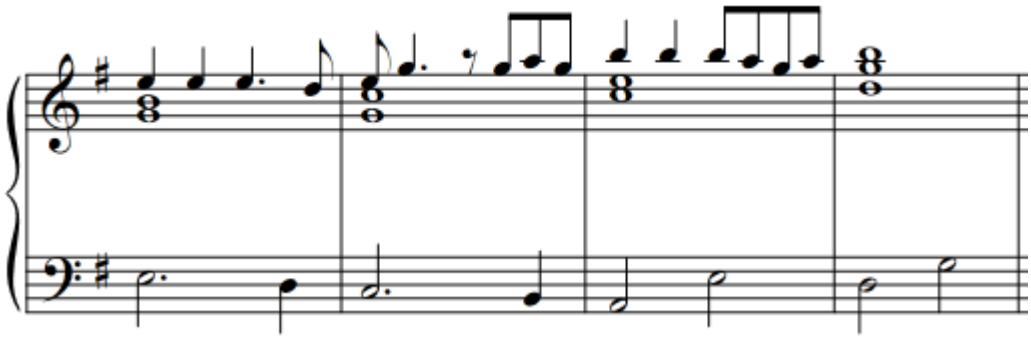


Figure 11: Excerpt from "Great Warrior", mm 33 – 37 (Uematsu & Nima, 1997:155)

The significance of these three themes is that they share common thematic material, though they are deliberately divided, so that each theme is still meant to represent a specific character or place. The shared material, although varied between the three compositions, references to the strong and relevant connection these three themes have with each other: Red XIII to his father and them in turn to Cosmo Canyon.

6.3 Survival Horror Games

The Survival Horror genre of video game is a better example of an actual "genre" than other video game classifications. For one, the genre of survival horror is not based solely on the interactive gameplay, but rather on certain gaming elements on which the interactive gameplay is built around. Furthermore, there are certain traditions in the iconography and plotlines of these video games that bind them together.

In contrast to action games, survival horror games do not place focus on fast action and powerful weapons, but rather emphasizes the handicaps of the player-character and the obstacles within the gaming environment, hence the inclusion of "survival" in the genre title. Whalen (2004) performs a detailed analysis of *Silent Hill* with focus on the music used within. He places emphasis on the contrast between the "safe" and "danger" states that can be found in survival horror games and the music that accompanies these states.

6.3.1 The Resident Evil series

Although not the first game of its type, *Resident Evil* (1996) is known by gamers today as the birthplace of the survival horror genre. Being set in a deserted mansion housing a secret

underground laboratory, the game contains many devices home to the horror film genre, including mutilated corpses, zombies, mutated animals and other abominations.

To add to the horror element of the game, the player is limited in many ways: Even though the game is played out in 3D[11], the player-character can either turn on the spot, or move backwards or forward, never both at the same time. Movement and aiming is therefore slow and can be a hindrance when the player is suddenly attacked from behind. This is of course deliberate as it can cause panic when the player cannot react fast enough.

Furthermore, ammunition is severely limited, forcing the player to use unwanted means to defeat an enemy (for example using a knife, which in turn places the player-character in a close and vulnerable position to its enemy) or to flee the enemy altogether. This is in contrast with other genres, for example the *Tomb Raider* series, where the pistols always have unlimited ammunition, or FPS games, in which it is accepted that the player will eradicate every enemy in sight.

Not only is ammunition limited, but the amount of items the player can carry in its inventory are also restricted; therefore players must decide on the amount of weapons, healing herbs and ammunition they want to carry beforehand. Any unwanted items can be stored in various four-dimensional item boxes[12] found around the mansion, although this means that the player can only access the items once they reach a new item box. Again this is in contrast with other genres; most other games make use of the so-called "magic satchel"[13]. It should be noted that these item boxes are always found in rooms where there is no threat of attack; these are the "safe" segments of the game which Whalen (2004) refers to.

In an unprecedented step, *Resident Evil* also limits the amount of times a player is allowed to save his game. Saving the current progress of the player can only happen at the one of the assortment of typewriters scattered throughout the game, and only if the player has an ink ribbon in his inventory. The player is not only forced to take a gamble by not saving at every single typewriter he happens to come across, he also has to sacrifice an inventory slot to make space for the ink ribbons.

[11] The character and enemy models are 3D, but are superimposed on a pre-drawn, 2D background. Nonetheless, the effect is three dimensional.

[12] Four-dimensional item boxes all contain the same contents. In other words, if the player placed an item in one item box, that item could be found within any box throughout the level. This is implemented for practical reasons: If a player has to backtrack through half of the level just to get one item it will break the flow of the game.

[13] A "magic satchel" places no limitations on how many items a player may carry, no matter how unrealistically big or heavy the load might be.

Lastly, there is no clear HP (Hit Point) system to *Resident Evil*; the game rather makes use of in-game cues to notify the player of the characters current health status. When the in-game characters start clutching their sides, they are low on health. In this state they also move slower and are therefore more exposed to enemy attacks, making it even more difficult to survive.

These are the base elements of the survival horror genre as set down by *Resident Evil*, and can be found in other games of the genre, famous ones being the *Silent Hill* series and *The Thing*.

Of course, trends develop and change, and survival horror games have incorporated more and more elements from mainstream action games. They are therefore sometimes considered to be a subgenre of the action-adventure video game, according to the list of genres on Wikipedia.org (online source 2). Indeed, the most recent game in the *Resident Evil* series, *Resident Evil 5* (2009), resembles an action game much more than the original game, however it diverges from the action genre enough that it still can be considered a survival horror game.

For one, it makes use of an over-the-shoulder perspective, meaning that the player-character will always be seen from the back on a certain part of a screen, and it is only possible to aim from this perspective. It is harder to aim this way than with other 3rd person perspectives, and definitely much harder than aiming from a 1st person perspective. Also, on the Playstation 3 and Xbox 360 consoles, players have to aim with the analogue stick by default, which is also much harder than, for instance, aiming with a mouse (of course, it is possible to use the mouse to aim in the PC version of the game).

Ammunition is still limited. Especially at higher difficulty levels, players will have trouble finding enough ammunition to dispatch every single enemy in the game without soon searching for more ammunition. Inventory space also remains limited, although the inventory system in *Resident Evil 5* has been revamped. Players can now only access their inventory while in the gaming environment, making for quick selections of weapons or healing herbs, but also increases the urgency in which player needs to do this, as they can still be attacked while doing so. This is a big step; in previous incarnations *Resident Evil* the player could always relax while accessing their inventory, for the game would pause automatically, placing the player in a “safe” zone. The gaming universe of *Resident Evil 5* is therefore one big “danger” zone.

6.3.2 Music in Resident Evil 5

Chan (2007) mentions how *Resident Evil* broke the boundaries in interactivity and video game audio, claiming that the original game in the series "showed the way how the audio landscape could be manipulated to create the atmosphere of tension and horror."

In the first *Resident Evil*, music was looped within certain areas of the gaming universe. Because the game was slow-paced, longer tracks could be composed that would give the game a more cinematic feel (if the tracks were too short, they would be repeated too often and become tedious). As the technology of the era permitted, the music was orchestral in nature, but synthesized via MIDI tracks. The game also makes use of silence; as in horror films, frequently there will be silence just before a particularly gruesome or shocking scene, accompanied by loud and jarring sounds to maximize the effect.

Whalen (2004) refers to the opening of *Resident Evil*: Code Veronica as an example of this:

> Another survival horror title *Resident Evil*: Code Veronica (2000) typifies the displacement of the safe state/danger state binary. Figure 12a shows the player-character, Claire, exploring a hallway in the opening sequences of the game. There are no enemies, so non-diegetic music is silent. The next scene initiates an encounter with zombies (Figure 12b), and enacts the standard danger state accompaniment of rhythmically intense music in a diminished or minor key. In other words, the silence has replaced the safe state music, and the danger music is more intense than similar music in, say, Ocarina of Time. As is the case with horror films, the silence of the first scene puts the player on edge rather than reassuring him that there is no danger in the immediate environment, increasing the expectation that danger will soon appear. The appearance of the danger is, therefore, heightened in intensity by way of its sudden intrusion into silence.

In *Resident Evil 5*, the music is incorporated slightly differently. Because of the faster pace of the game, the music changes to what is happening onscreen. When the player is in an area where there are no enemies nearby, certain tracks of music can be heard. Similarly, when the player is being attacked, faster, more upbeat tracks are phased-in. The music does not stop until the player kills every enemy in the area. It is up to debate how successful this means of incorporation is: on the one hand, the player will know that there are still enemies in the area if the music is still playing, and will therefore not be surprised when they are attacked; on the other hand, the player will realize that there are still enemies in the area, but will not know when or how they will be ambushed.

This departure from the original game is not lost on the composer. Kota Suzuki acknowledges that he wanted to make a "clean musical break" (online source 6) with the previous games of the series. He continues:

> "As the look of the game has changed from the previous series, I spent many hours trying to figure out how to approach it with music […] We tend to relate horror with darkness, but this time the game takes place in Africa with a blazing hot sun. […] I contemplated on how I could stir the player's emotion by music embodying two opposite elements [...] After much trial and error, the director came up with a key phrase 'panic horror.' And from there, I put my focus on panic-stricken music for the players. In fact, I did often get panicky while playing this game myself"

Resident Evil 5 also uses different themes for different characters and unique enemies in the game. For instance, each boss battle has its own music, but when the same boss is encountered much later in the game, the same music can be heard.

6.4 Other video game genres

Many games, instead of incorporating several scores in complex ways to the interactive whims of the video game, rather just loop a piece of music endlessly to serve as background sound. This was how music was originally incorporated into video games, but even today, with the technology enabling composers and gaming developers to blend music in ways never before possible, certain genres of video games still use this tried and trusted method.

6.4.1 Real Time Strategy (RTS)

Real Time Strategy games, being video games that can only be played one map[14] at a time, make use of looping music. Because playing through a map can potentially take over an hour, the developers are allowed to incorporate much larger segments of music without risking most of it going unheard. Indeed, composers would have to write longer works, as having a too short piece of music being looped too frequently will become tedious to the player.

In older RTS games it was common for a set piece of music just to be repeated without afterthought. In the original *Warcraft* (1994) for example, there were various pieces of music that could be played, according to the race that the player would choose to play. Because the tracks of music would be played from the CD, players who got tired of the music could put

[14] A map in this case would refer to a gaming level; because RTS games are played from an overhead perspective (and from a reasonable distance, as from looking from an aeroplane down), the gaming environment resembles a map.

their own CD's in after the game was started so that they could listen to the music of their choice (this was not meant by the developers, but rather a flaw exploited by gamers).

RTS games have evolved somewhat since then. More recently, games such as *Command & Conquer: Red Alert 3* (2008) are incorporating music in a slightly more interactive way. Set pieces of music would be played at the beginning of each level, as is traditional, but at certain key events throughout the map, new music would be phased in. When the player is attacking the enemy, or is being attacked, new, more upbeat music will be heard to notify the player of what is going on. This method is successful at playing music that is more applicable to what is going on-screen, yet it can have unwanted effects as well. When a player is targeted by an enemy, but no conflict ensues, the music will fade in regardless, thereby warning the player to an attack that never happened.

6.4.2 Fighting games / Driving games

Fighting games are games in which short bouts of one-on-one fighting ensue, until either player (or computer-controlled character) loses all of his hit points (HP), or the timer runs out. The timer default in most fighting games are usually 60 seconds; to complete one level of this type of game is therefore extremely short. The music that accompanies the action on screen suits this – it the music is upbeat and short enough so that is only slightly longer than the longest timer setting, which is usually 120 seconds. This means that players will only get to hear the complete track once they change the default timer setting.

Driving games, similarly, are played one racing course at a time, though the amount of laps might vary from level to level. However, racing through an entire course still does not cover a significant amount of time, usually ranging from about 3 to 5 minutes. Music used in driving games is therefore also short enough so that it will cover this timeslot; it will rarely happen that the music will finish and loop. As with fighting games, the music is upbeat to simulate the sensation of speed.

In both fighting and driving games, a certain level or course is connected to a specific piece of music. Because the levels are so short, players will play through the levels multiple times. By having the same track of music accompany the same levels, a sense of familiarity is planted with the gamer. This is also true of reverse tracks[15], where the same piece of music

[15] Reverse tracks are basically racing levels, just being played in the opposite direction. This allows the marketing to claim double the amount of racing levels on the box art.

will be used as the original track, reminding the player that they are in fact playing a familiar level.

6.4.3 Puzzle Games

Puzzle games are another genre of video games where short levels are played one at a time. As with older games, the piece of music is just played and looped until a player finishes the level. The next level might have a new track, or not, depending on the video game. Older games such as *Tetris* (1984) still gave the player a selection of music tracks which they could listen to before a level.

More recently, with puzzle games being widely available online, free to download (or free to try, with an option of buying an upgraded version later) puzzle games will frequently feature only one piece of music for the entire duration of the game. While this might seem like a step backwards, it is for practical reasons: Because the developers want the games to be downloaded easily, they try and make the file as small as possible. Having only one music track therefore goes a long way to diminishing the overall file size.

Not all puzzle games just mindlessly repeat music. Certain games such as *Bust-a-Move Deluxe* (2006) have small variations in the music, such as accelerating the music at a higher pitch to remind the player he is in a tight spot, or to slow the music down to a comfortable pace when the player is in no danger of failing the level.

6.5 Discussion

6.5.1 Genre

It is obvious from the four examples of First Person Shooters (all released in the past 2 years) that one cannot always classify music just according to the video game genre, even in a genre with so many traditions and conventions such as the FPS genre. In the four examples discussed above techno, dance, African, jazz and 20th-century music genres have been found. The means of integrating the music into the game is also different in the four games, ranging from relying mostly on diegetic sources for music to a total absence of diegetic music.

The one thing these video games do have in common with regards to music is that all of them had music specifically written and composed for them. To suit the different milieux, composers and musicians of varying training and stylistic approaches were commissioned to write music that will match the game. Even in the case of *BioShock* and *Fallout 3*, which

both borrow inspiration and aesthetics from the 1950's, the music is different (this excludes the licensed tracks that are used in the game; these tracks would have been effective in either game).

This is not totally unexpected; video game genres are constantly expanding and developing, some are integrated into other genres, and some disappear altogether, causing a headache for anyone who wishes to absolutely classify these genres. It only makes sense that the music written for these games will change and develop as well.

However, when looking at other video game genres, certain patterns can be identified. For instance, the music of *Final Fantasy VII* is representative of the Role Playing Game genre. Similarly, the music of *Resident Evil* is representative of the Survival Horror genre of the past, just as *Resident Evil 5*, even though much different from the original game in the series, is now representative of the Survival Horror genre presently.

6.5.2 Structure

The fundamental problem in creating structure in video game music is that music has to be composed to fit into a series of images that do not have a fixed time frame. In this sense video game music is different from opera, ballet or vocal music, in each of which the musical time is linked inseparably to the time of the dance, image or text. In video game music this link is severed: the game and the music each move on in their own time, yet still have to fit together in a way that is more than mere background music, a requirement that the composer and programmer have to fulfil in a unique way. At its best the illusion is created that the music is joined exactly to the particular version of the game that is in progress at a given moment.

The first technique employed to this end is to use music loops. Looping a piece of music seems to be the most obvious technique composers (and programmers) use to incorporate music into a video game. This is especially true of slower paced games, such as games from the RPG and RTS genres, where compositions of over 10 minutes might sometimes be heard. The fact that music is being looped is also more pronounced in these games.

In contrast, fast-paced games cannot readily make use of this technique; frequently the action on-screen will not last long enough to allow for a lengthy excerpt of music. Therefore, composers of these games write shorter pieces of music, and to give structure to it, they have certain in-game cues which will initiate or terminate the music. This could be the entering

and exiting of in-game locations, the beginning and ending of in-game action, or pre-scripted events, which will not allow a piece of music to be played longer than a pre-allocated amount of time (take for example the gramophones in *BioShock*, which will never play music longer than just a few seconds).

6.5.3 Style

It is clear by now that the video game genre does not dictate the style of the video game music. What seems to be the deciding factor of the style of video game music is the composer himself. Even though video games might share genres, iconography and even specific milieux and aesthetic ideals, the style of music remains up to the composer.

Composers still need to keep the video game in mind when composing. The use of 20th century techniques in *BioShock* works, because the video game is set in a dark and twisted universe. Similarly, the ethnic style used in *Far Cry 2* matches the African setting of the video game.

However, even though the gaming universe of *Resident Evil 5* is also set in Africa, the music is far removed from what can be heard in *Far Cry 2*. The small ensembles and African instruments used in the soundtrack for *Far Cry 2* works, because the game is itself focused on realism. In contrast, the full orchestras and "panic horror" style used in *Resident Evil 5* helps to convey the terror of being confronted by an army of undead, albeit in a cinematic style.

CHAPTER 7: THE USE OF WESTERN ART MUSIC IN VIDEO GAMES

Like film and television music, Western art music (so called "classical" music) permeates the sphere of video game music as well. As in film music, snippets of classical music are sometimes used in video games as symbolic devices. Even though there are games that rely solely on western art music for its soundtrack (the original *Tetris* comes to mind), most often classical music is incorporated, sparingly, into a soundtrack with a specific goal in mind.

Video games from different genres will be investigated to see how these goals are achieved. Most of these games have been mentioned in previous chapters.

7.1 Resident Evil

As the first video game to coin the genre "survival horror", it would seem that there are more than enough opportunities for it to exploit the wide range of western art music to enhance the mysterious atmosphere of the gaming-universe. However, throughout the game, only one excerpt from a piano sonata can be heard: the famous first movement of Beethoven's so-called "Moonlight" Sonata, Op. 27, No. 2.

As with many video games that incorporate puzzle elements into the gameplay, a player must frequently find keys, hidden entrances or means of progress to move deeper into the gaming universe. In an original move, *Resident Evil* requires the player-character to the play a piece on a piano in-game before they can progress to the next section.

This raises the question on why Beethoven's Moonlight Sonata was chosen as the pivotal piece from the wide range of piano literature available. One might argue that it is a well-known piece that will resonate with players both with knowledge about music and without, although there would be many other piano pieces that would also fit the bill.

Most likely, the Moonlight Sonata was chosen specifically because of the history behind it. It is well-known that Beethoven did not give the title to his sonata; indeed, Beethoven experienced the sonata as a pensive, painful work, in contrast to the sweet title given by publishers as to draw people to buy the work.

This draws parallels to what is going on in *Resident Evil*. Like the Moonlight Sonata being a dramatic, emotional work being covered by a syrupy title, the gaming-universe within *Resident Evil* also hides something more sinister: At first the player thinks the game is being

played out in an old-fashioned mansion, but later realises that this is merely a cover for clandestine activities being performed within the depths below.

Though not the first game to incorporate art music like this, this is a good example of how classical music can be used to provide a deeper, introspective and foreboding element to a video game.

7.2 Call of Duty: World at War

Being a typical First Person Shooter, one would not expect Western art music to make an appearance in a fast-paced game such as this. However, *Call of Duty: World at War*, set in World War II, incorporates an excerpt of a classical work ingeniously.

Call of Duty: World at War is played out from different perspectives, one being from a Russian soldier fighting on the side of the Soviet Bloc. The in-game timeline spans many years, first covering the attack of German soldiers on Stalingrad, where the player-character witnesses the massacre of his comrades and barely escapes with his life. When the game progresses, the player is fast forwarded to the Russian invasion of Berlin; even though this cuts out a lot of potential material of the Second World War that could have been used in-game, this serves a clear purpose: The idea the German invasion and the seeds of revenge are still recent in the players memory, giving a means of identifying with the Russian soldier.

In this Berlin-level, the player will progress from building to building, shooting down German soldiers as he advances. However, in one of the buildings the player will be confronted with the sound of Mozart's *Requiem,* specifically the *Dies Irae.* At first one might be caught off-guard by this ominous sounding choral work, yet it brings the message across powerfully: The "Day of Wrath" has indeed reached the Germans. It is cleverly incorporated: The music can be heard only within a specific, broken down building within the level, and even though there is no gramophone in sight, the music has been qualitatively edited so that it sounds like the record-players of old.

However, if a player should linger in the area long enough, he would realise that it is only a short excerpt from the *Dies Irae* being played, being cleverly cut at a specific point so that it could be looped without pause. This ruins the effect to a certain extent, though it is not in the nature of a First Person Shooter for player to stay in one area too long, rather to progress through the level at a fast pace.

7.3 BioShock

As mentioned in a previous chapter, *BioShock* incorporates music in the game via both diegetic and non-diegetic means. Of the diegetic means, a player will frequently come across a gramophone player. In contrast to the single, invisible gramophone player in *Call of Duty: World at War*, these players are clearly visible within the gaming-universe, frequently being placed on unstable surfaces, waiting to be bumped off by the player-character or the enemies in-game. When this happens, the music immediately stops.

Also, unlike the infinite looping of the *Call of Duty* gramophone, the gramophones in *BioShock* would play a short segment of music, before being cut off, as if the needle slipped of the record. This goes a long way toward adding an extra dimension to the realism to the diegetic music in-game. This in itself is ironic: *BioShock* employs a science fiction narrative, whereby *Call of Duty: World at War* is based on real world events.

Not only is the "slipping of the needle" a necessary device for rationalizing the use of very short excerpts of music, but it adds to the atmosphere of the video game, emphasizing the deterioration that has been suffered by the once-utopian gaming world. These music excerpts are tracks covering many genres, including swing and jazz music from the 1920's to the 1950's.

However, one piece of ballet music can also be heard: Tchaikovsky's *Waltz of the Flowers* from his famous *Nutcracker*. Again, one must ask why this specific piece was chosen from the vast amount of classical repertoire available. The answer is simple: The Romantic Russian style of music from the time of Tchaikovsky is considered to be the golden era of the ballet. This was a time in history when large orchestras, lush backdrops and stages filled with dancers in silk stockings and various costumes were the norm. After this era, ballet music took a drastic plunge into the Modern Era (*Le Sacre du Printemps*, a ballet by fellow Russian, Stravinsky, is an example of how relatively quickly the ballet scene had changed). The use of the *Waltz of the Flowers* is used to serve as a reminder of how far the gaming universe has fallen before the player-character arrived.

Also, because the *Nutcracker* is themed around Christmas, it is frequently performed over the Christmas season. Because the player-character arrives in the gaming universe just after New Year's, 1960 (the decorations of the party can still be seen in-game), the use of this specific piece of music is also referencing to the recent celebrations within the gaming world.

7.4 The Grand Theft Auto series

The *Grand Theft Auto* series of video games allows various kinds of crime to be included as part of the gameplay, including violence, drugs and prostitution. One would not expect classical music to play a meaningful role in games such as these; however, because the *Grand Theft Auto* series prides itself on open-ended gameplay[16], it would only make sense that, when employing the car radios within the game as the diegetic source of all music, it would give the player a wide choice of what to listen to.

The choice to implement music in a strictly diegetic way does much to immerse the player into the gaming world. However, it is the music tracks that are made available to the player that goes the extra distance in placing the player within the right milieu. Chan (2007) correctly states that the music tracks used in *Grand Theft Auto* are "musical documents for cultural references to an era". As previously stated, *GTA: Vice City* uses music from the 1980's to make the gaming universe, which borrows many aesthetic cues from the decade, more believable.

From *Grand Theft Auto III* onward, there has always been a Classical radio station which the player can listen to. Under normal circumstances, one would never encounter random classical music in an action game or film. However, like real life, one would be able to listen to whatever you please when you are driving a car. This can be seen as both an advantage and disadvantage, for it allows the player to listen to any music he feels like at that moment, but at the same time it could be music that does not match what is going on on-screen.

[16] This means that there are no clean-cut levels or linear paths which the player needs to follow; he can complete the game in whichever order he pleases.

CHAPTER 8: CONCLUSIONS

It should be clear by now that music does not at all conform to any framework with regards to video games. Today, music of absolutely any genre could be incorporated successfully into any video game. Furthermore, the means of audio incorporation also differs from game to game, regardless of genre.

Speaking of genre, even though one might see certain patterns in video games of a specific genre, they are by no means applicable to music. As discussed above, many different styles of music can be found across a video game genre and even within a single video game. Also, even though genre might dictate the norm in which music is assimilated within the video game (for example through diegetic or non-diegetic means), there are too many exceptions to one rule to be acceptable.

This does not mean that one cannot categorise music in video games: When looking at the origin of the music in question, for instance, whether it is pre-composed or not, one can already draw certain conclusions.

Also, the "stereotype" of video game music, dubbed "early video game music" in this thesis, is what gives music its identity of being from a video game. However, just as Western art music does not need to be purely acoustic in today's world, so video game music does not need to sound like its ancestral counterpart. We should recognise that video game music has moved on from the mere bleeps and buzzes of earlier decades. Indeed, music used in video games can sound like any other music.

This raises the question on why video game music still has not enjoyed the amount of attention given to other instances of media. Although it is perfectly acceptable to analyse the music from movies and musicals for example, video game music has yet to garner the same attention and respect.

There is still much basic research that can be done. As discussed in Chapter 3, there is a relationship between the movement in video games and the music composed for it, and this is a gap that should still be filled. There is a noticeable lack of analyses done on the music of specific video games. It would be easy to write an academic work focussing solely on the music of one video game genre. Furthermore, a methodological framework might be created that caters specifically to the music of video games, taking into consideration elements that cannot be found in other analytical structures.

By this time it must be apparent that video game music deserves to be studied, scrutinised and analysed. Perhaps when studies are done by video gamers and music researchers alike, it can finally enjoy the attention it deserves.

BIBLIOGRAPHY

Amancio, A. 2008. *Introduction to the Dunia Engine* in Far Cry 2 Official Site. Ubisoft Entertainment, http://farcry.uk.ubi.com/index.php?page=blog&action=article&content_id=6350 (accessed September 21, 2009).

Ament, V. T. 2009. *The foley grail: the art of performing sound for film, games and animation*. Burlington, Massachusetts: Focal Press.

Belinkie, M. 1999. *Video game music: not just kid stuff.* http://www.vgmusic.com/vgpaper.shtml (accessed September 21, 2009).

Boer, J. R. 2002. *Game audio programming.* Hingham, Massachusetts: Charles River Media.

Canham, M. 2008. *Far Cry 2 Soundtrack Preview by Nimrod Productions Director and Composer Marc Canham.* In music 4 games. Music4Games, Inc. http://www.music4games.net/Features_Display.aspx?id=293 (accessed September 21, 2009).

Capacchione, T. 2007. *A Study of Unity in* Arcanum: Of Steamworks and Magick Obscura. In GamesSound.com. http://www.gamessound.com/texts/Arcanum.pdf (accessed 17 October 2009).

Chan, N. 2007. *A Critical Analysis of Modern Day Video Game Music.* Unpublished dissertation for the degree of Bachelors of the Arts, Department of Music: University of Nottingham.

Childs, G. W. 2006. *Creating music and sound for games.* Florence, Kentucky: Course Technology PTR.

Collins, K. 2006. *Loops and bloops – music of the Commodore 64 games*. Soundscapes – Journal on Media Culture, Volume 8. http://www.icce.rug.nl/~soundscapes/VOLUME08/Loops_and_bloops.shtml (accessed August 15, 2007).

Collins, K. 2008. *Game sound: an introduction to the history, theory, and practice of video game music and sound design.* Cambridge, Massachusetts: MIT Press.

Cooke, M. 2001. *Film music,* in: Sadie (ed.), *The New Grove Dictionary of Music and Musicians* (Volume 8, pp. 797 – 810). London: Macmillan Publishers.

Digaetani, J.L. 1986. *An Invitation to the Opera.* New York and Oxford: Facts on File Publications.

Farnell, A. 2007. *An Introduction to Procedural Sound and its Application in Computer Games.* In GamesSound.com. http://obiwannabe.co.uk/html/papers/proc-audio/node25.html (accessed October 16, 2009).

Farnell, A. 2008. Designing sound: practical synthetic sound design for film, games and interactive media using dataflow.

Furlong, C. 2006. *Computer game music – a multifunctional medium.* In Cian Furlong Music. http://www.cianfurlongmusic.net/Music/Computer_Game_Music_-_A_Multifunctional_Medium.pdf (accessed February 9, 2010).

Garmin, J. 2005. *Geek Trivia: First shots fired.* In TechRepublic. http://articles.techrepublic.com.com/5100-10878_11-5710539.html (accessed October 26, 2009).

Grimshaw, M. 2008. *Sound and Immersion in the First-Person Shooter.* In: Mehdi, Q., Estraillier, P. and Eboueya, M. (eds.) Proceedings of CGAMES'2007. 11th International Conference on Computer Games, Université de La Rochelle, France, 21-23 November 2007. http://wlv.openrepository.com/wlv/bitstream/2436/35995/2/Grimshaw_CGAMES07.pdf (accessed January 31, 2010).

Harris-Warrick, R., Goodwin, N. and Percival, J. *Ballet.* In Grove Music Online. Oxford Music Online, http://www.oxfordmusiconline.com/subscriber/article/grove/music/46700 (accessed September 21, 2009).

Hoffer, P. 2007. *Music for New Media: Composing for Videogames, Web Sites, Presentations, and Mobile Devices.* Milwaukee, Wisconsin: Hal Leonard Corporation.

Kahney, Leander. 2003. *Grandiose Price for a Modest PC*. In Wired. http://www.wired.com/culture/lifestyle/news/2003/09/60349 (accessed 28 September 2007).

Kennedy, S.A. 2009. *Far Cry 2* in Music 4 Games: Reviews. Music4Games, Inc. http://www.music4games.net/Review_Display.aspx?id=199 (accessed September 21, 2009).

Kent, S. L. 2001. *The ultimate history of video games.* New York, New York: Three Rivers Press.

Konzack, L. 2002. *Computer Game Criticism: A Method for Computer Game Analysis.* Tampere. Tampere University Press, cited in Stockburger, A. 2005. *The Game Environment from an Auditive Perspective*. In AudioGames.net. http://www.audiogames.net/pics/upload/gameenvironment.htm (accessed August 15, 2007).

Lacey, N. 1998. *Image and Representation: Key Concepts in Media Studies.* Houndmills, Basingstoke, Hampshire and London: Macmillan Press.

Lacey, N. 2000. *Narrative and Genre: Key Concepts in Media Studies.* Houndmills, Basingstoke and Hampshire: Macmillan Press.

Leonard, S. 2001. *Scores of Glory, Fantasy and Plumbing: The Concise History and Principal Genres of Video Game Music.* http://www.seanspace.com/iSphere/scores.htm (accessed February 28, 2008)

Marks, K. 2008. *Game development essentials: game audio development*. Florence, Kentucky: Delmar Learning.

Marks, K. 2009. *The complete guide to game audio: for composers, musicians, sound designers and game developers.* Burlington, Massachusetts: Focal Press.

McCuskey, M. 2003. *Beginning game audio programming.* Cincinnati, Ohio: Muska & Lipman.

Neumeyer, D. and Buhler, J. 2001. *Analytical and Interpretive Approaches to Film Music (I): Analysing the Music.* In: Donnelly (ed.) *Film Music: Critical Approaches.* New York. The Continuum Publishing Group, cited in Whalen, Z. 2004. *Play Along – An Approach to Videogame Music*. The International Journal of Computer Game Research, Volume 4, Issue 1. http://www.gamestudies.org/0401/whalen/ (accessed May 24, 2007).

Nordliner, M. 2007. *Lair of Beowulf: A Study of 3D Positional Sound in an Audio Mostly Game*. In GamesSound.com. http://www.gamessound.com/texts/3dPosi%20Audio%20in%20game.pdf2007. Luleå University of Technology.

Pidkameny, E. 2002. *Levels of Sound*. Video Game Music Archive. http://www.vgmusic.com/vgpaper2.shtml (accessed September 28, 2007).

Scruton, R. 1999. *The Aesthetics of Music.* Oxford: Oxford University Press.

Stockburger, A. 2005. *The Game Environment from an Auditive Perspective*. In AudioGames.net. http://www.audiogames.net/pics/upload/gameenvironment.htm (accessed August 15, 2007).

Temperley, N. 2002. *Opera,* in: Latham (ed.), *The Oxford Companion to Music*. Oxford and New York: Oxford University Press. p. 863

Turner, B. and Bowen, K. 2003. "*Bringin' in the DOOM Clones"* In Gamespy.com Articles. IGN Entertainment, Inc. http://archive.gamespy.com/articles/december03/doom/clones/ (accessed September 21, 2009).

Uematsu, N. (composer) and Niwa, A. (piano arranger). 1997. *Final Fantasy VII Original Soundtrack Piano Sheet Music.* Tokyo. DOREMI Music Publishing. p. 73-75, 147-149, 153-155.

Whalen, Z. 2004. *Play Along – An Approach to Videogame Music*. The International Journal of Computer Game Research, Volume 4, Issue 1. http://www.gamestudies.org/0401/whalen/ (accessed May 24, 2007).

Wolf, M. 2001. *Genre and the Video Game* in: Wolf (ed.), *The Medium of the Video Game.* Austin, Texas: University of Texas Press.

Zehnder, S. and Lipscomb, S. 2006. *The role of music in video games,* in: Vorderer and Bryan (eds.), *Playing video games: motives responses, and consequences.* Mahwah, New Jersey: Lawrence Erlbaum Associates.

SOURCES OF UNKNOWN AUTHORSHIP

Online Source 1: *Reviews.* Accessed September 21, 2009. http://www.ign.com/index/reviews.html

Online Source 2: *Category: Video Game Genres.* Accessed June 12, 2009. http://en.wikipedia.org/wiki/Category:Video_game_genres

Online Source 3: *Quake.* Accessed September 21, 2009. http://www.imdb.com/title/tt0152116/fullcredits

Online Source 4: *Interview with BioShock composer Gary Schyman.* Accessed September 21, 2009. http://www.music4games.net/Features_Display.aspx?id=156

Online Source 5: *Fallout 3.* Accessed September 21, 2009. http://pc.ign.com/objects/568/568806.html

Online Source 6: *Resident Evil 5 Music Drops*. Accessed October 18, 2009. http://music.ign.com/articles/986/986536p1.html

VIDEO GAMES LIST

2K Games. 2007. *BioShock.* [PC Game], Boston and Australia: 2K Games.

Bethesda Game Studios: 2008. *Fallout 3.* [PC Game] Maryland: Bethesda Softworks.

Blizzard Entertainment. 1994. *Warcraft: Orcs & Humans.* [PC Game], Irvine: Blizzard Entertainment.

Capcom. 1996. *Resident Evil.* [PSX Game], London: Virgin Interactive.

Capcom. 2009. *Resident Evil 5.* [PC Game], Osaka: Capcom.

Computer Artworks. 2002. *The Thing.* [PC Game], Tokyo: Konami.

Core Design. 1996. *Tomb Raider.* [PC Game], Wimbledon: Eidos Interactive.

DMA Design. 2001. *Grand Theft Auto III.* [PS2 Game], New York: Rockstar Games.

Dreams. 2006. *Bust-a-Move Deluxe.* [PSP Game] Tokyo: Taito.

EA Los Angeles. 2008. *Command & Conquer: Red Alert 3.* [PC Game], Los Angeles: Electronic Arts.

Epic Games. 2008. *Unreal Tournament 3.* [PC Game], Chicago: Midway Games.

Firaxis Games. 2005. *Civilization IV* [PC Game], New York: 2K Games.

id Software. 1993. *DOOM.* [PC Game] Mesquite: id Software.

Ion Storm. 2000. *Deus Ex.* [PC Game], Wimbledon: Eidos Interactive.

Konami, Team Silent. 1999. *Silent Hill.* [PSX Game], Tokyo: Konami.

Nextech. 2000. *Resident Evil: Code Veronica.* [Dreamcast Game], Osaka: Capcom.

Nintendo. 1985. *Super Mario Brothers.* [NES Game] Redmond: Nintendo.

Pajitnov, A. 1984. *Tetris.* Various publishers.

Rockstar Games. 2002. *Grand Theft Auto: Vice City.* [PS2 Game], Edinburgh: Rockstar North.

Square. 1987. *Final Fantsy.* [NES Game], Tokyo: Square.

Square. 1997. *Final Fantasy VII.* [PC Game], Wimbledon: Eidos Interactive.

Square. 2000. *Final Fantasy VIII.* [PC Game], Wimbledon: Eidos Interactive.

Square Enix. 2006. *Dirge of Cerberus: Final Fantasy VII.* [PS2 Game], Tokyo: Square Enix

Square Enix. 2006. *Final Fantsy XII.* [PS2 Game], Tokyo: Square Enix.

Square Enix. 2008. *Crisis Core: Final Fantasy VII.* [PSP Game], Tokyo: Square Enix

Treyarch. 2008. *Call of Duty: World at War.* [PC Game], Santa Monica: Activision

Troika Games. 2001. *Arcanum: Of Steamworks and Magick Obscura* [PC Game], Los Angeles: Sierra Entertainment.

Ubisoft Montreal. 2008. *Far Cry 2.* [PC Game], Montreal: Ubisoft.

APPENDIX A

List of genres mentioned by Wolf (2001) in *Chapter 6: Genre and the Video Game* from *The Medium of the Video Game*.

1. Abstract
2. Adaptation
3. Adventure
4. Artificial Life
5. Board Games
6. Capturing
7. Card Games
8. Catching
9. Chase
10. Collecting
11. Combat
12. Demo
13. Diagnostic
14. Dodging
15. Driving
16. Educational
17. Escape
18. Fighting
19. Flying
20. Gambling
21. Interactive
22. Movie
23. Management Simulation
24. Maze
25. Obstacle Course
26. Pencil-and-Paper Games
27. Pinball
28. Platform
29. Programming Games
30. Puzzle
31. Quiz
32. Racing
33. Role-Playing
34. Rhythm and Dance
35. Shoot 'Em Up
36. Simulation
37. Sports
38. Strategy
39. Table-Top Games
40. Target
41. Text Adventure
42. Training Simulation
43. Utility

List of genres mentioned at IGN.com

1. Action
2. Action Adventure
3. Action Compilation
4. Action RPG
5. Action Simulation
6. Adventure
7. Adventure Compilation
8. Board
9. Card
10. Card Battle
11. Casino
12. Compilation
13. Education Action
14. Education Card
15. Education Productivity
16. Education Puzzle
17. Fighting
18. Fighting Action
19. Flight
20. Flight Action
21. Flight Simulation
22. Hunting
23. Hunting Simulation
24. Music
25. Music Action
26. Other
27. Party
28. Pinball
29. Platformer
30. Productivity
31. Puzzle
32. Puzzle Action
33. Puzzle Adventure
34. RPG
35. Racing
36. Racing Action
37. Racing Editor
38. Racing Simulation
39. Shooter
40. Simulation
41. Sports
42. Sports Action
43. Sports Simulation
44. Strategy
45. Strategy RPG
46. Trivia
47. Virtual Pet
48. Wrestling

List of genres mentioned in Wikipedia - Category: Video game genres

1. Action role-playing game
2. Action game
3. Action-adventure game
4. Adventure game
5. Art game
6. Artillery game
7. BL game
8. Beat 'em up
9. Business simulation game
10. Christian video game
11. City-building game
12. Collectible card game
13. Combat flight simulator
14. Construction and management simulation
15. Dating sim
16. Escape the room
17. Fighting game
18. First-person shooter
19. God game
20. Government simulation game
21. Grand Theft Auto clone
22. Graphic adventure game
23. Hidden object game
24. Interactive movie
25. Life simulation game
26. Light gun shooter
27. Massively multiplayer online game
28. Massively multiplayer online role-playing game
29. Multiplayer-Co-op
30. Music video game
31. Non-game
32. Nonviolent video game
33. Online text-based role-playing game
34. Otome game
35. Platform game
36. Programming game
37. Puzzle video game
38. Racing video game
39. Real-time strategy
40. Real-time tactics
41. Rhythm game
42. Roguelike
43. Computer role-playing game
44. Role-playing game (video games)
45. Console role-playing game
46. Shoot 'em up
47. Shooter game
48. Simulation video game
49. Single-co-op
50. Social simulation game
51. Space flight simulator game
52. Sports game
53. Stealth game
54. Strategy video game
55. Survival horror
56. Tactical role-playing game
57. Tactical shooter
58. Third-person shooter
59. Tower defense
60. Traditional game
61. Turn-based strategy

62. Turn-based tactics
63. Vehicle simulation game
64. Vehicular combat game
65. Visual novel
66. Wargame

APPENDIX B

Types of sound objects according to Stockburger's (2005) article: *The game environment from an auditive perspective*.

1. Speech sound objects
2. Effect sound objects
    a) Effect sound objects linked to the avatar:
    b) Effect sounds of usable objects carried by the avatar:
    c) Effect sound objects linked to game characters:
    d) Effect sound objects linked to other entities in the game environment:
    e) Effect sound objects linked to events in the game environment:
3. Zone sound objects
4. Score sound objects
5. Interface sound objects